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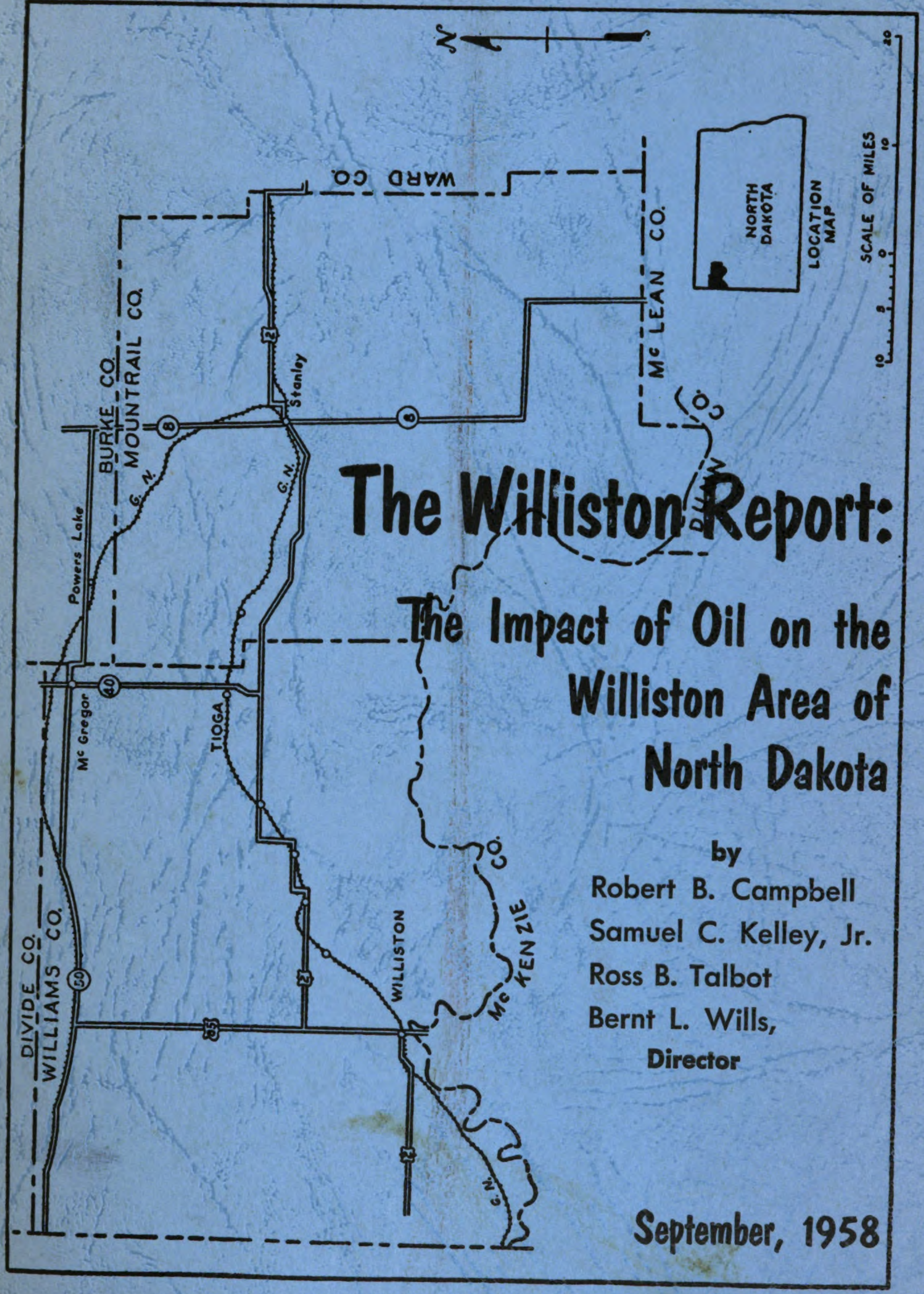
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NORTH DAKOTA
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SCALE OF MILES
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Powers Lake
Mc Gregor
TIOGA
WILLISTON
G. N.
8
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The Williston Report:

The Impact of Oil on the Williston Area of North Dakota

by
Robert B. Campbell
Samuel C. Kelley, Jr.
Ross B. Talbot
Bernt L. Wills,
Director

September, 1958

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PREFACE

In the spring of 1954 the Louis D. and Maud Hill Family Foundation of St. Paul, Minnesota, A. A. Heckman, Executive Secretary, made a substantial grant to the University of North Dakota, enabling the University to carry out a social science research project in the Williston area. The purpose of the project was to determine the consequences of oil discovery and development in Williams and Mountrail counties upon the areas and population directly involved.

This was an interdisciplinary study representing four departments of the University. The four departments and the faculty members responsible for each on this project were: Economics, Dr. S. C. Kelley; Geography, Dr. B. L. Wills (Director); Political Science, Dr. R. B. Talbot; and Sociology, Dr. R. B. Campbell. Other faculty members who rendered valuable assistance were Dr. W. E. Koenker, Economics; Prof. H. M. Kjelmer, Business; Prof. D. H. Poole, Geography; and Prof. R. V. Smith, Geography. Valuable service was given by Barbara Virden, Raymond Daugherty, and James McDonald, who were full-time research assistants, and also by Mrs. Lona Malde Trygg, who did much of the statistical compilation.

Grateful acknowledgement is made to the Hill Foundation for its financial support, to the Bureau of Business Research of the University of North Dakota for technical assistance, and to the Alumni Association of the University of North Dakota for assistance in the handling of the funds.

Finally, to the people of the oil fields, whose attitude of friendly cooperation made this undertaking both a successful effort and a pleasant experience, sincere appreciation is expressed.

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ERRATA

Page 12, paragraph 5, line 2: Read Great Northern Railway instead of Northern Pacific.

Page 24, paragraph 4, line 8: Read 110°F instead of 100°F.

Page 52, paragraph 3, line 2: Read January 16, 1953 instead of January 16, 1955.

Page 66, paragraph 1 below Table XX, line 1: Read From the 1952-53 school year to the 1954-55 school year.

Several words with typographical errors are readily understandable.

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INTRODUCTION AND SUMMARY[1]

From the time of its earliest permanent occupance until 1951 the area of this study had been an agricultural area. Directly or indirectly, almost every resident had relied primarily upon the thin cover of soil, upon the vagaries of a capricious weather and upon the biological rhythm of plant and animal life for his livelihood and for his welfare.

The people there were products of this land. Several generations in that place had brought about a pattern of living, an adjustment of man to land which was established and mature. It was a way of life based upon neighborhoods and communities where major problems were common problems, where not only rancher and farmer, but banker, lawyer, doctor, school man, storekeeper—almost everyone there—knew this way of life, understood it and was a part of it. By most standards these people were well off, and evidence is lacking that they were less content with their lot in life than were those in other areas.

That this area was a possible source of oil had been known to geologists and oilmen since the 1920's. The people of the area were quite familiar with the sight of oil derricks and drilling rigs, for numerous unsuccessful attempts to find oil had been made.[2] Most of the people had become quite inured to talk of oil by the winter of 1950-51 and few really expected that anything so unusual as the discovery of oil in their area would upset the even tenor of their lives.

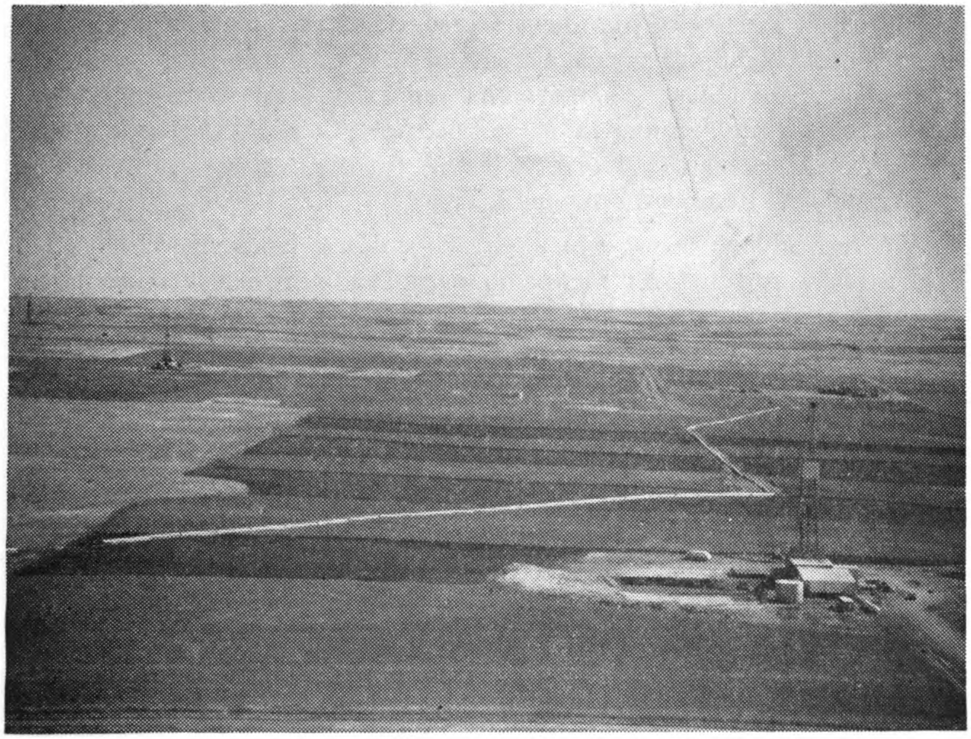
In January, 1951, Amerada Petroleum Corporation reported the recovery of a single pint of oil on a test of its Clarence Iverson wildcat well on the Nesson Anticline of the Williston Basin. That recovery, small though it was, stirred oilmen throughout the United States. To them it indicated the probable opening of a new oil province, the Williston Basin.

On April 4, 1951, Amerada Petroleum Corporation brought in its discovery well, Clarence Iverson No. 1, with an initial production of over 300 barrels in 17 hours, and the oil boom was on.

The onslaught of the boom activity disturbed the established patterns in the impact area. What seemed to be multitudes of strangers invaded and over-ran the town and rural areas alike. The influx included not only members of the oil fraternity—the oil operators, oil scouts, oil well promoters, the geologists, drillers, lease buyers, royalty buyers, brokers, etc., but also many people whose coming was related only in a secondary way to the oil activity itself. These ranged from unskilled workers willing to work at anything to an instructor in aesthetic dancing, and from persons who would cheerfully work outside the law to professional welfare and religious workers.

Demand for housing far outran supply. All available space was pressed into service. Garages, granaries, and sheds were converted into living quarters and business places. Improvised shacks, as well as sub-

OIL WELLS AND PIPELINE NEAR TIOGA, N. D., SUMMER, 1954



This is a representative scene of the major North Dakota oil producing area. The pipe line is the 24 inch line being laid to the Tioga refinery. Note that farming operations generally continue throughout the field. COURTESY GNDA tantial structures, were constructed and utilized. Hundreds of house trailers were brought into the area.

Community services were jammed; schools were clogged and put on a shift basis, transportation and communication systems were strained, roads suffered damage from the heavy truck traffic. Repair work could hardly keep up with the rapid wear. Thus the permanent residents of the area found that costs of public services rose sharply while the services declined.

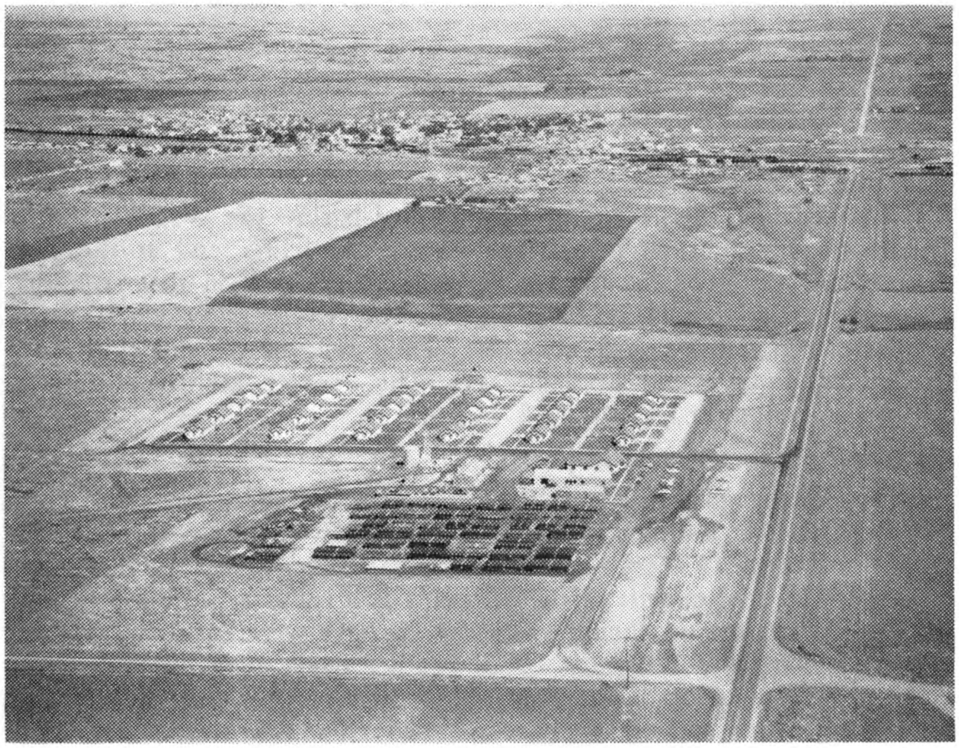
Business activity in the towns soared. The newcomers brought both capital and demand for goods. Dozens of new establishments came into being, from small lunch counters and service stations to large oil-field equipment supply houses. In some instances these establishments extended well beyond the towns, as along the three-mile highway from U. S. Highway 10 into the town of Tioga.

In the oil producing area itself the cultural landscape changed as steel derricks rose in ever increasing numbers, as drillers and geophysical crews sought and found the limits of the pools. Pipe lines were laid to sidings. Loading racks were erected. Storage tanks went up at wells and at local terminal points. Warehouses, company offices, and "camps" were built at desired locations. As gas pressure weakened at producing wells, the wells were put on pumps and the enormous jacks (for these are deep wells) became distinctive features of the landscape. At night the oil fields literally sparkled with the lights of the burning gas flares which dotted the area like so many torches.

To these landowners on whose property oil was found, or who received high payment for mineral rights, the oil development meant increased wealth and opportunity for "the more abundant life." To many of the others it yielded little more than bitterness. Often the original residents found themselves in the position of a minority group. The newcomers often had markedly different backgrounds from the older residents, often they were of different political or religious persuasion. When the earlier residents sought employment in the oil development program they found only the lower paid, less skilled jobs open to them, for the big oil concerns commonly brought their own trained labor supply into the area.

The almost frenzied activity of the boom gradually subsided and by 1955 conditions could be described as quite well stabilized or settled. The conditions, however, were not those of 1950, for the effects of oil development are long-lasting. To all, new or old, the oil development meant readjustment and change. To the state it meant increased wealth and a partial check on the declining trend of the state's population. To the oil producing area it also meant release from almost complete dependence upon an agricultural economy.

AMERADA'S FIELD CAMP AND TIOGA, N. D., SUMMER, 1954



In the foreground is the Amerada Camp, first its supply dump (largely pipe, or casing); in the center of the camp are warehouses and offices followed by 30 company houses. About a mile to the north of the field camp is the town of Tioga. COURTESY GNDA

SUMMARY

The effects of the oil development have invaded every aspect of life in the "Basin." They have influenced the demographic structure, the political balance, the social organization, employment and standards of living, and the physical attributes of the area.

These impacts are considered in summary form in the following paragraphs. The chapters which follow treat of them in greater detail.

Physical Impacts:

The area of this study, the "impact area," consists of much of eastern Williams County and western Mountrail County in northwestern North Dakota. The principal oil fields comprise an area about 35 miles long (north-south) by 5 miles wide, located about 40 miles east of the city of Williston, North Dakota. (FIGURE 1)

Geologically, this is a portion of a filled basin—the Williston Basin. The most important oil trap is the Nesson Anticline, and at the time of this study most of the producing wells are located on that structure. Topographically this is a plains area, largely overlain by glacial drift.

This region has a semi-arid continental type of climate, with relatively cold winters and hot summers. The average annual rainfall at Williston is slightly less than 15 inches.

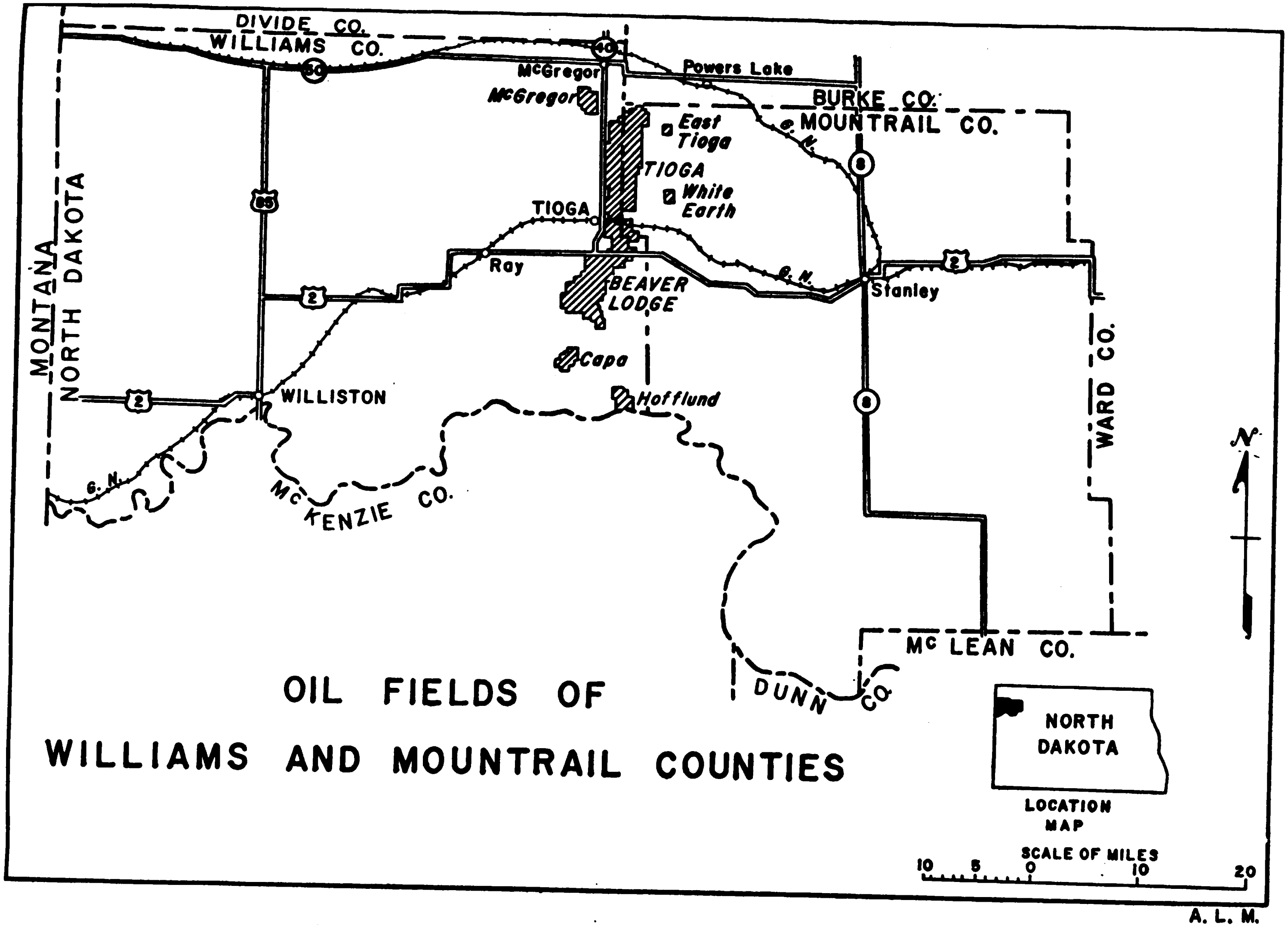
Transportation Network Impacts:

The major routes of supply of this area are the main line of the Northern Pacific Railroad, Federal Highway No. 2, and State Highway No. 40. (FIGURE 1) Very little change in the pattern of the major routes of supply occurred outside of the oil fields as a result of oil development, but within the oil producing areas the changes were marked. In those areas approximately 200 miles of all-weather roads were added between April, 1951 and July, 1954. This added mileage consisted of township and county roads and of "well-access" roads. The latter type were built by the petroleum companies, of which the most active was the Amerada Petroleum Corporation.

A direct consequence of the oil development activity was the additional wear and damage done to road surfaces by the increase in vehicular traffic (this increase was in both number and weights of vehicles), and by the attendant increases in maintenance costs. The exact amount of the road wear and cost which can be attributed to oil development is difficult, if not impossible, to measure, but that it was considerable is certain.

Demographic Impacts:

The impact of the oil industry on population numbers and characteristics in Williams and Mountrail counties was of varying significance. In general, notable effects were experienced in the rural non-farm centers (Ray, Tioga, and Tioga Environs) and in the urban center (Williston)


OIL FIELDS OF
WILLIAMS AND MOUNTRAIL COUNTIES
DIVIDE CO.
WILLIAMS CO.
BURKE CO.
MOUNTRAIL CO.
WARD CO.
MC LEAN CO.
DUNN CO.
McKENZIE CO.
MONTANA
NORTH DAKOTA
McGregor
McGregor
Powers Lake
East Tioga
TIOGA
White Earth
TIOGA
Ray
BEAVER LODGE
Capa
Hofflund
WILLISTON
Stanley
G. N.
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85
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NORTH DAKOTA
LOCATION MAP
SCALE OF MILES
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FIG. 1 — *Oil Fields of Williams and Mountrail Counties*

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which were ideally located to serve as residential, service, and focal points in the oil field and associated developments. The remainder of the two counties, including the rural impact townships and Stanley, was noticeably less affected.

The following basic changes in population characteristics seem to be especially significant.

1. Williams County had a percentage population increase of 26.8% between 1950 and 1954, whereas Mountrail County had a decrease of 5.5%. Rural non-farm settlements and urban Williston showed marked increases due to the direct influence of the oil industry; the remainder of both counties maintained the downward trend characteristic of purely rural North Dakota counties.

2. There were changes in the proportion of younger persons relative to other age groups in those significantly affected centers, with a trend towards a generally younger population.

3. A relatively large number of people in Ray, Tioga, and Tioga Environs occupied trailers, illustrating the migratory nature of a fairly large sector of the labor force.

4. Large numbers of workers and families were attracted to the area from considerable distances. In each of the rural non-farm and urban centers a rather large proportion of the population has been drawn from noncontiguous states.

5. The great increase in workers engaged in the mining and construction, service, and trade classifications reflects the nature of the development and the increased requirements for various services and facilities.

6. The fluid nature of the population and frequent population fluctuations have resulted in a trend towards a lower but more stable population level. This trend became evident in late 1954.

Social Impacts:

The large increase in population, particularly as it represented an influx of "alien" people to the Basin, was expected to create social problems, situations for which there would be feelings of dissatisfaction and around which would develop conflicts in attitudes. It was anticipated that these attitudes would be readily observable in the opinions of the inhabitants of the area and in the actions of their organizations and agencies. Only to a limited extent were these expectations borne out by the observations.

It was true in Williston that the already existing organizations did not make general efforts to embrace the newcomers into their memberships; but it was also true that there were no overt antipathies toward the newcomers on the part of organization leaders. There were conflicts in Ray and Tioga about specific issues, but the participants in the con-

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flicts were not identified by background and length of residence as much as by "conservatism" or "backwardness" and their opposites.The most general negative attitude about the people involved probably was that held by the rural residents toward the town merchants, who were considered to have "sold out" to the oil people. The nearly complete absence of negative categorical attitudes of "natives" and "newcomers" regarding each other in Williston is indicated by the latters' opinions about the former and the opinions of both groups as to whether or not the newcomers had been accepted. Both attitudes were positive to the extent of 99% and 96% respectively.

There was a surprising absence of social problems arising out of the changed situations. The housing situation was the one most clearly considered problematic, although it appeared that housing in general (rather than specific residences) was most often the situation opined about. There were very few comments about small, dilapidated, dirty residences in the area, despite the general awareness of a "tight" housing situation. (Apparently no plans for low-rental housing were being made either by public agencies or private building firms; all construction appeared to be aimed at high-rental levels, thus creating what turned out to be a new problem rather than a solution.)

Criminal and immoral behavior did not develop to the level of general problem conditions, and there was a virtual absence of comment regarding it. There were a few expressions of negative attitudes about the oil people, but they were limited primarily to rural residents' comments about the bad-check writing of oil field workers.

The really apparent changes, some of which took on the nature of social problems, were to be found in public agency requirements. The school systems and the post office (in Williston, at least) were seriously taxed to keep abreast of the changes. Building could not be accomplished at sufficient speed, thus a series of makeshift arrangements had to suffice; schools had to operate on a split day in the small towns and the Williston post office had to reorganize its operations and to remodel its working space. Other agencies encountered less startling and less pressing changes with the possible exception of government road construction and maintenance agencies).

In general, the change was widespread in the circumstances of the Williston Basin residents, but the definition of these circumstances as problematic was not sufficient to bring about even more sweeping changes. Conflicts appeared to be local and confined to specific issues, which were resolved with so little lasting prejudice that negative attitudes about the "alien" inhabitants were not apparent to a noteworthy degree.

Political Impacts:

The discovery and development of an important natural resource is almost certain to involve the phenomenon of political power. In

Bertrand Russell's words, "power may be defined as the production of intended effects."[3] When a new oil field is opened there is tremendous activity by those who desire to produce certain "intended effects." Such was the case in the Williston area. First, some of the major oil producers moved into the new boom area to secure legal authority to develop the oil field. Then it became necessary to protect investments through the passage of favorable legislation and the creation of a sympathetic public opinion. This strategy was not novel on the part of the oil companies but constituted what has been called the utilization of "anticipated reactions." The large oil producers formed an association called the North Dakota Oil and Gas Association; some landowners and businessmen organized the Williams County Landowner's and Royalty Owner's Association and other like interest groups. At the state level, the State Legislative Research Committee delved into the problem of proposing oil legislation that would be in the interests of the State of North Dakota. Out of the crucible of the legislative process came oil legislation which was a mixture of the efforts of pressure groups, legislative committees, lawyers, research directors, prominent politicians, and influential citizens. The unstable power situation in the North Dakota legislature meant that compromise was a necessity but the oil companies were successful, for the most part, in securing tax and conservation features in oil and gas legislation that were compatible with their best interests.

In the administration of the oil laws new frictions and contentions arose. The issue of well-spacing was threshed out but the decisions reached did not always meet with the concurrence of some of the landowners. The role of the State Geologist became more complex and confusing as scientific judgments and political and economic interests became inter-twined. The importance of the North Dakota Industrial Commission in the field of oil policy was soon apparent and, more recently, the role of the Public Service Commission became increasingly important due to the construction of pipe lines and the wholesale price of natural gas products. The value of state-owned land in the oil areas assumed a new significance as its revenue-producing capacity increased very considerably with the discovery of oil.

The public's role in this new venture was interesting and perplexing. The results of a questionnaire survey, which was conducted by the authors of this study, strongly indicated that most people in the Williston area actually did not understand even the main features of the legislation pertaining to oil. Also, in an effort to create a favorable climate of opinion for their activities, the oilmen created a local unit of the Oil Industry Information Committee in order to "educate" the youth and, to a lesser extent, the adults about the production and distribution of oil. Their efforts were well-planned and intelligently executed but there is some question as to whether the techniques constituted education or propaganda. This study attempts to analyze that issue.

What might be termed the "power elite" has not changed notably since the advent of oil. The executives of the major oil producers have been added to the existing power structure in the Williston area composed primarily of prominent bankers, lawyers, and businessmen. Thus a new and dynamic element was grafted on to the already existing power structure within the local communities and principally within the city of Williston.

As one would expect, the rapid influx of population caused some disruption and overburdening of the local governmental and non-governmental facilities in the Williston area. The public schools were particularly hard pressed; the cities had to increase their municipal services to considerable numbers of new customers. The changes in the "old way of life" and the increases in taxes caused the demand for a different form of city government in Williston, the election of a new city council in Ray, and some intra-community conflicts in Tioga.

Neither politics nor public administration, of course, stand alone. The economic basis of politics in the Williston area was quickly apparent. Much of the political controversy centered around the ancient question of who was going to get what, and how. Social changes in terms of in-migration, the interaction of different cultures, the increased public welfare burdens, etc., were not as vast as expected, but these changes may have a rather substantial long-run effect upon voting patterns and habits. The geography of the area is certain to have an impact upon future political events. If the oil fields are considerably extended and increasingly productive the changes in voting patterns of the electorate may again be modified.

As of the end of this study (1955), it appeared that oil had not caused any political revolution in North Dakota. The picture should be somewhat clearer after the counting of the ballots that will be cast in the November election in 1956.

Economic Impacts:

The economy of the Williston Basin is characterized by agriculture. The peculiarities of climate and rainfall limit the agriculture of the area to dry-farming and grazing. Nearly 80 percent of the value of farm products sold in 1954 were derived from field crops, mainly cash grains and the remainder from livestock and livestock products.

This type of agriculture, which is characteristic of the Great Plains, requires extensive farming on a very large scale. Average farm size in Williams County is over 830 acres, yet the typical farm is operated on a family basis with a large capital outlay for mechanical equipment and little outlay for hired labor. Nearly 90 percent of all farms in Williams County were operated by full or part owners. Only 60 percent of all farms employed any hired labor in 1954 and only 15 percent spent more than $500 for farm wages.

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The non-agricultural sector of the area's economy is engaged exclusively in the distribution of goods and services to the farm sector. It produces, locally, almost nothing that is consumed by the area. Prior to the development of petroleum extraction, manufactures and mining were limited to printing and publishing, domestic food processing and the extraction of lignite on a limited scale. Nearly all private employment and income was derived from occupation in trade, service, and transportation.

In this type of economic situation, extensive agriculture tends to evict people from farms in an area where the number of other employment opportunities is dependent upon the size of the farm population and farm income. The out-migration that results produces a population decline and a consequent reduction in income and employment.

The discovery of oil in this area has had two primary effects upon the economy of the area. First, it has created supplemental income to farm families through the sale of mineral leases and mineral rights, and to a smaller number of persons through royalty payments on land with producing wells. This supplementary income has permitted the repayment of mortgage obligations on farm land, the purchase of new farm equipment, and general farm improvements. In many cases it has provided the capital outlay necessary to eliminate the farm from submarginal status.

Second, it has provided additional job opportunities directly and indirectly as it has employed individuals in well drilling activity, in the servicing of oil extraction, and in the impact of an expanding population upon the trade and service industries. Between 1947 and 1954, manufacturing employment in Williams County increased by nearly 90 percent and value added by manufacture nearly 300 percent. Employment in retail and wholesale trade increased by 30 percent and sales by 70 percent. The major expansion in indirect employment was in the service industries. In this industrial sector, employment increased by more than 60 percent and service receipts had a gain of 226 percent over 1947.

As these values suggest, the oil development has stimulated the local economy to levels of activity in excess of that expected under the economic condition existing prior to 1951. However, it is apparent that the initial impact of the development has acted as an autonomous factor inducing change that is not warranted by the long-term potential of petroleum extraction in the area. The local economy is beginning to feel the effects of the induced over-investment in business inventories, in land, and in extended credit. A favorable combination of factors such as winter climate had, however, acted to reduce the rate of growth induced by the discovery and thus to decrease the magnitude of the adjustment below that which has been observed in other "boom" areas. It appears quite likely that oil will provide a sustaining factor in this economy in the future and that much of the adjustment to the altered economic structure is already accomplished.

FOOTNOTES

[1] The first section of this chapter is by Bernt L. Wills. The summaries are by the authors of the chapters which follow.

[2] It was in 1920 that the Pioneer Oil and Gas Company drilled North Dakota's first dry hole, township location 154 N, R 100 W. The Amerada successful effort of 1951 was at nearby T155 N, R 95 W. So near but yet so far!

[3] Bertrand Russell, *Power—A New Social Analysis* (London: George Allen and Unwin, Ltd., 1938), p. 35.

PHYSICAL ATTRIBUTES OF THE AREA

Bernt L. Wills

Geographic Location:

The oil producing area is relatively small. For the most part it consists of a field about thirty-five miles long (north-south) and about five miles wide (east-west) located astride much of the common boundary between Williams and Mountrail counties in northwestern North Dakota. Several smaller fields lie nearby. A surrounding area of considerably larger size felt the impact of oil development very strongly, however, and is included within the area of this study. The oil field, the additional major impact area, and other significant features are shown on the map, Figure 2. It will be noted that the oil field lies about forty miles east of Williston, the county seat of Williams County, and about twenty-five miles west of Stanley, the county seat of Mountrail County.

Topography:

This area constitutes a part of the Missouri Plateau, a sub-province of the Great Plains, and for the most part is a region of undulating plains. Toward the southern portion of the area a change of slope conditions occurs and the topography becomes much more rugged. There relatively high escarpments overlook deep coulees and valleys and finally face upon the broad floodplain of the Missouri River. Glacial drift blankets most of the area except in the bluff section in the south where underlying formations are exposed. These formations consist chiefly of shales, some sandstones, and occasional layers of "scoria."[1] Gravel deposits are quite common throughout the area.

Geologic Situation:

The Williston Basin is a geologic basin, although, as indicated above, it is a plains region topographically. It is a filled basin whose upper sedimentary formations encompass more than half of North Dakota, plus parts of Manitoba, Saskatchewan, Montana, and South Dakota. This large areal extent is shown in Figure 3.

As the name implies, the Williston Basin has the general shape of a basin or dish. The bottom of the "dish" lies under western North Dakota for the most part, and in its thickest sections the sedimentary formations in that area have a total thickness of over 15,000 feet. This dipping of strata and depth situation is graphically illustrated in the diagrammatic geologic cross-section of North Dakota, Figure 4. This drawing represents the eastern portion of the dish or basin. Westward the basin and its structures incline upward upon the geologic extensions of the Rocky Mountains.

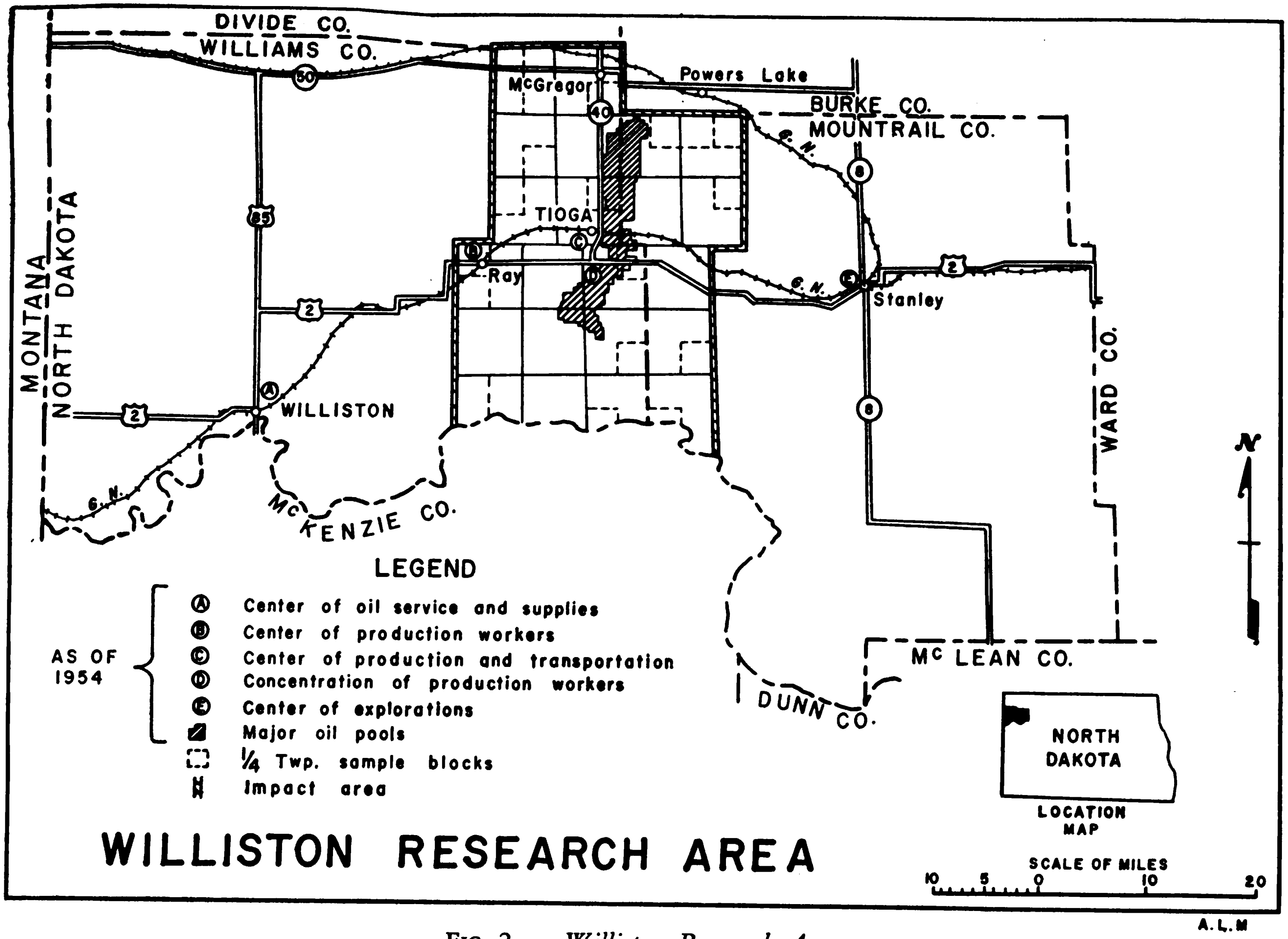
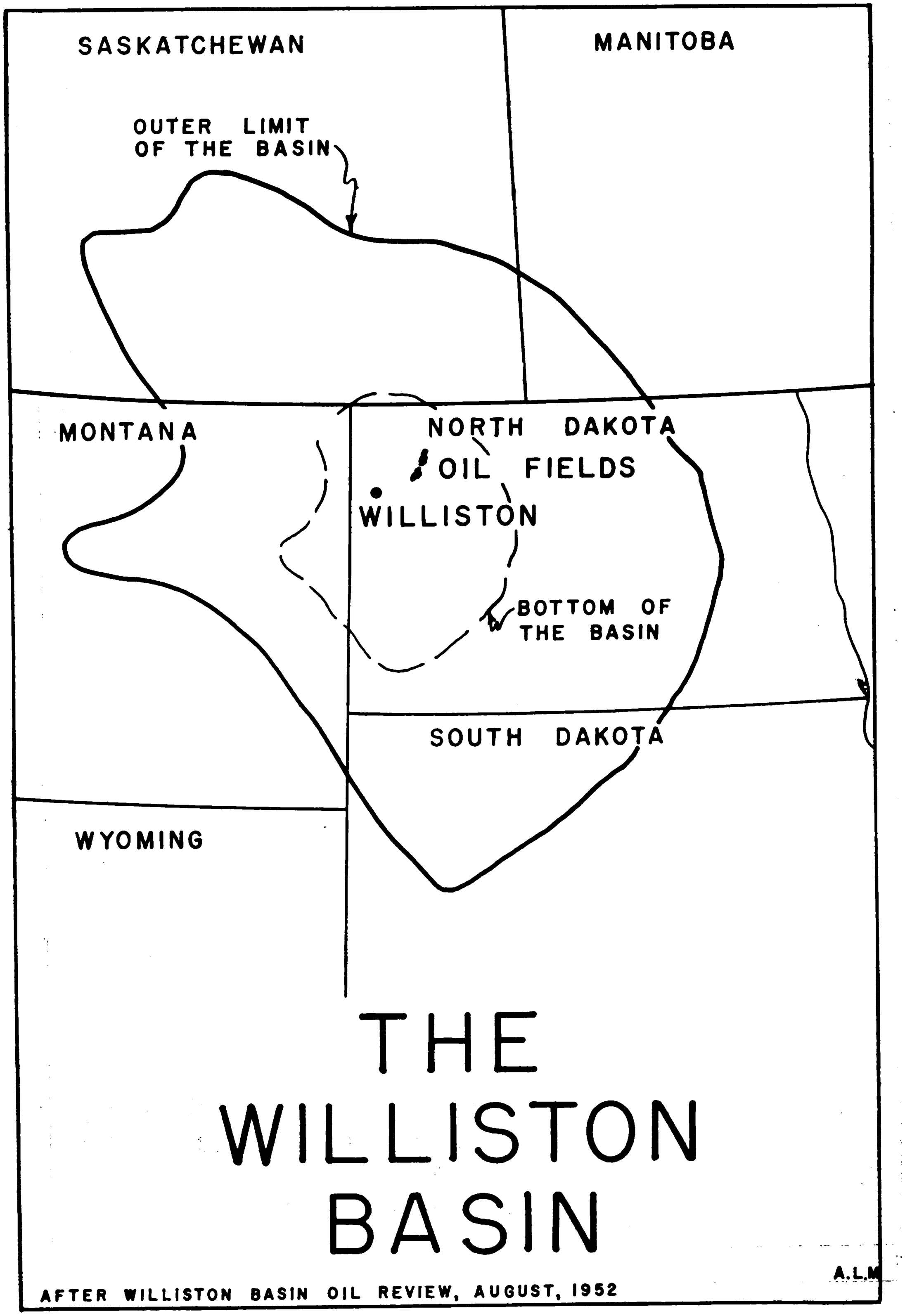

DIVIDE CO.
WILLIAMS CO.
50
McGregor
40
Powers Lake
BURKE CO.
MOUNTRAIL CO.
G. N.
8
TIOGA
85
B
C
Ray
D
E
2
Stanley
MONTANA
NORTH DAKOTA
A
WILLISTON
WARD CO.
N
G. N.
McKENZIE CO.
LEGEND
AS OF 1954
A Center of oil service and supplies
B Center of production workers
C Center of production and transportation
D Concentration of production workers
E Center of explorations
Major oil pools
1/4 Twp. sample blocks
Impact area
Mc LEAN CO.
DUNN CO.
NORTH DAKOTA
LOCATION MAP
WILLISTON RESEARCH AREA
SCALE OF MILES
10 5 0 10 20
A.L.M

FIG. 2 — *Williston Research Area*


SASKATCHEWAN
MANITOBA
OUTER LIMIT OF THE BASIN
MONTANA
NORTH DAKOTA
OIL FIELDS
WILLISTON
BOTTOM OF THE BASIN
SOUTH DAKOTA
WYOMING
THE WILLISTON BASIN
A.L.M.

AFTER WILLISTON BASIN OIL REVIEW, AUGUST, 1952

FIG. 3 — *The Williston Basin*

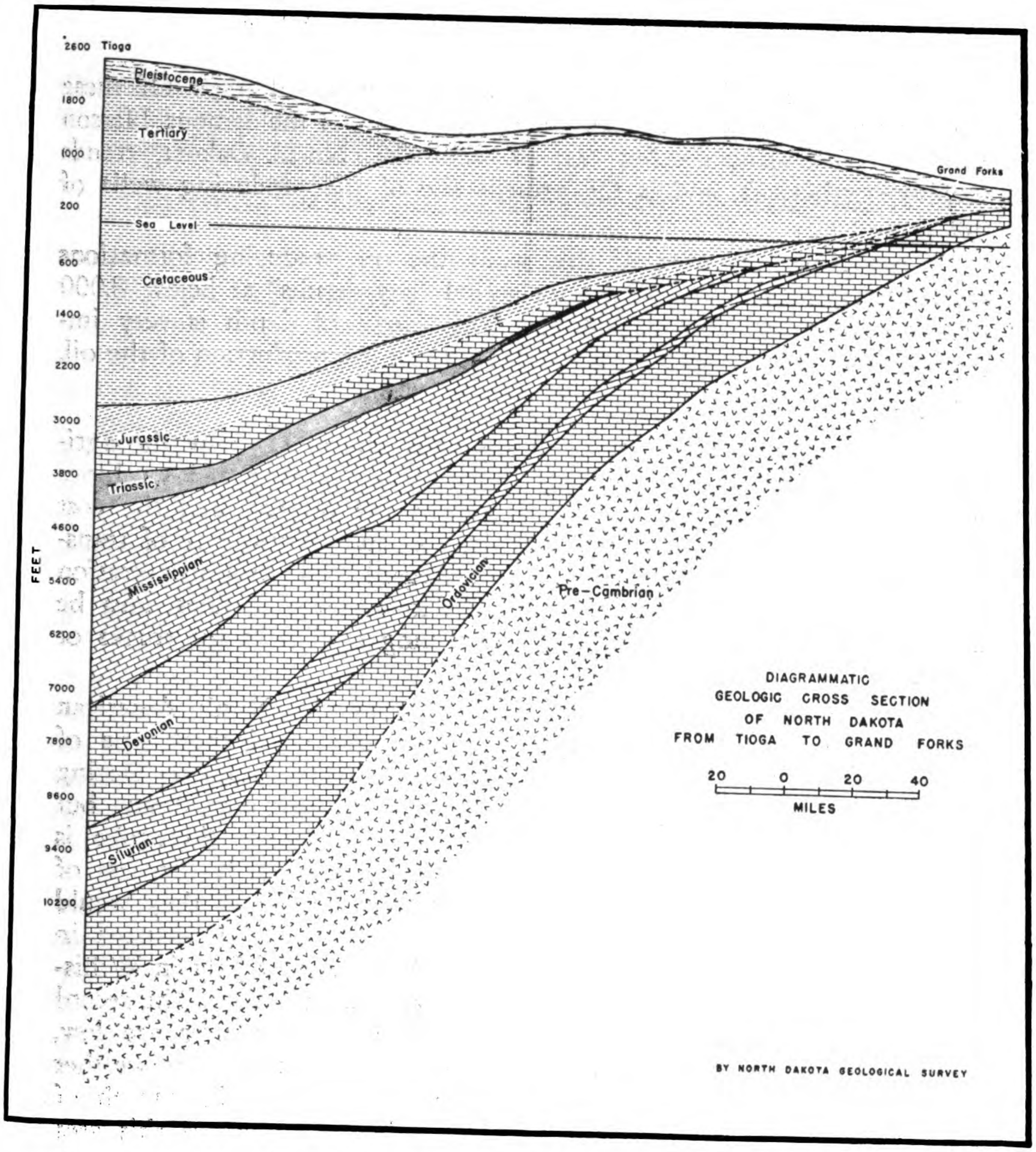

2600 Tioga
Pleistocene
1800
Tertiary
1000
200
Sea Level
600
Cretaceous
1400
2200
3000
Jurassic
3800
Triassic
4600
FEET
5400
Mississippian
6200
7000
Devonian
7800
8600
Silurian
9400
10200
Ordovician
Pre-Cambrian
Grand Forks
DIAGRAMMATIC GEOLOGIC CROSS SECTION OF NORTH DAKOTA FROM TIOGA TO GRAND FORKS
20 0 20 40
MILES
BY NORTH DAKOTA GEOLOGICAL SURVEY

FIG. 4—*Diagrammatic Geologic Cross Section of North Dakota from Tioga to Grand Forks*

Within the basin are structures which serve as oil traps. Of these the important one, for the purposes of this study, is the famous Nesson anticline. This structure lies east of Williston, North Dakota, trends roughly north-south, and is the present site of the producing wells of this area.

Throughout the area of this study the oil producing formations are relatively deep; most of the wells find "pay depths" at below 8,000 feet and some at below 11,000 feet. This factor of depth is very important, for it constitutes a critical cost factor in the production of the oil.

Climate:

The climate of this area, as of any area, affects not only the agricultural pursuits, but the efficiency and economy of men and machines in virtually all fields of endeavor. It affects the comfort and the cost of living of the labor force. It affects the cost and convenience of transportation of men and of goods. In this last regard crude oil transportation is no exception, for climate affects depths to which pipe lines must be laid, as well as cost of laying and maintaining road beds for trucks or trains.

Because of its location near the center of the North American continent, Williston and vicinity has a semi-arid continental type of climate with relatively cold winters and warm to hot summers. During the long hot summer days readings of 100°F are not uncommon, but nights are usually cool and conducive to rest and sleep. Sunstroke is virtually unheard of in this dry region, and because of the dryness of the air even the hottest days are not as uncomfortable as they would otherwise be. The record maximum temperature of 100°F occurred in July of 1936. The average temperature for the month of July in Williston is 69.4°F. In winter temperatures below zero are common. The record minimum -50°F also occurred in 1936. When temperatures are low, however, the air is generally dry, with little or no wind, and the weather is clear and invigorating. The average temperature for the month of January in Williston is 7.9°F. Variable weather characterizes this area for it lies in the track of cyclonic air masses which move eastward across the continent.

This oil producing area is the driest part of the state of North Dakota. The weather station at Tioga, with an annual average precipitation of 14.3 inches, has the lowest average reading of any station in the state. The average at Williston is 14.66 inches. Winter is the dry season. Few places so far north in the United States receive so little snowfall. Spring and early summer is the time of maximum precipitation.

The wind blows much of the time, usually from a westerly direction, and with an average hourly speed of about eight miles. The absence of violent windstorms in this area is indicated by the fact that the highest wind speed ever recorded at Williston was 60 miles per hour. However, blizzards are not uncommon in winter, and when they occur outside activity is brought to a halt. Fogs are infrequent and cloudy days are few. It is, therefore, a healthy, invigorating climate, favorable to physical and mental activity.

TRANSPORTATION PATTERNS AND OIL DEVELOPMENT*

Major Transportation Routes:

Figure 2 shows the major routes of supply of the area of this study. This pattern was not altered by the discovery and development of oil. It will be noted that the area is crossed by a single railroad, the main line of the Great Northern Railway, which serves, in order from east to west, the towns of Stanley, Ross, Manitou, White Earth, Tioga, Ray, Wheelock, Epping, Spring Brook, and Williston, each a focal point of local trade in the area. A branch line of the Great Northern Railway extends northwestward from Stanley through Powers Lake and thence north of the major oil producing area (FIGURE 1). This branch line is of minor significance to the oil producing area but the main line is very important.

The area is crossed by only one federal road, U. S. Highway No. 2. This is the only continuous, first class road which crosses the area. It, like the railroad, connects Williston and Stanley and crosses essentially the same territory but it follows the lines of the township and section surveys, therefore nearly always running straight north-south or straight east-west, consequently being of somewhat greater length than is the rail line. It misses several of the towns of the area, including Tioga.

Similarly the area of this study is served by only one state road, State Highway No. 40. This road runs north from U. S. Highway No. 2 through the town of Tioga and thence northward through the Tioga field. It became a very heavily used road following the discovery of oil, and as a result had much increased maintenance costs including additions of gravel. It was hard surfaced from the junction with U. S. Highway No. 2 to Tioga in 1953; thus for three and one half miles it is a first-class highway.

The remaining roads shown on Figure 2 as being major routes of supply are gravelled county roads. The first of these, in importance, is the so-called Ferry Road, which extends north-south across the Beaver Lodge Field from U. S. Highway No. 2 to the ferry on the Missouri River. The other is called the Scenic Highway. It runs eastward from Williston through the southern portion of this study area and is of particular importance to the Cafce and Hofflund Fields. It is rather fittingly named, as it skirts the breaks of the river and crosses small bad-lands areas.

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*Most of this section on transportation is condensed from the exhaustive work done on this subject by Donald H. Poole, "The Impact of Oil Upon the Road Patterns and Road Surfaces which Serve the Tioga-Beaver Lodge Oil Pools" (unpublished research paper, Department of Geography, Northwestern University, 1954). The maps shown in Figures 5, 6, 7, 8, and 9 are also by Mr. Poole.

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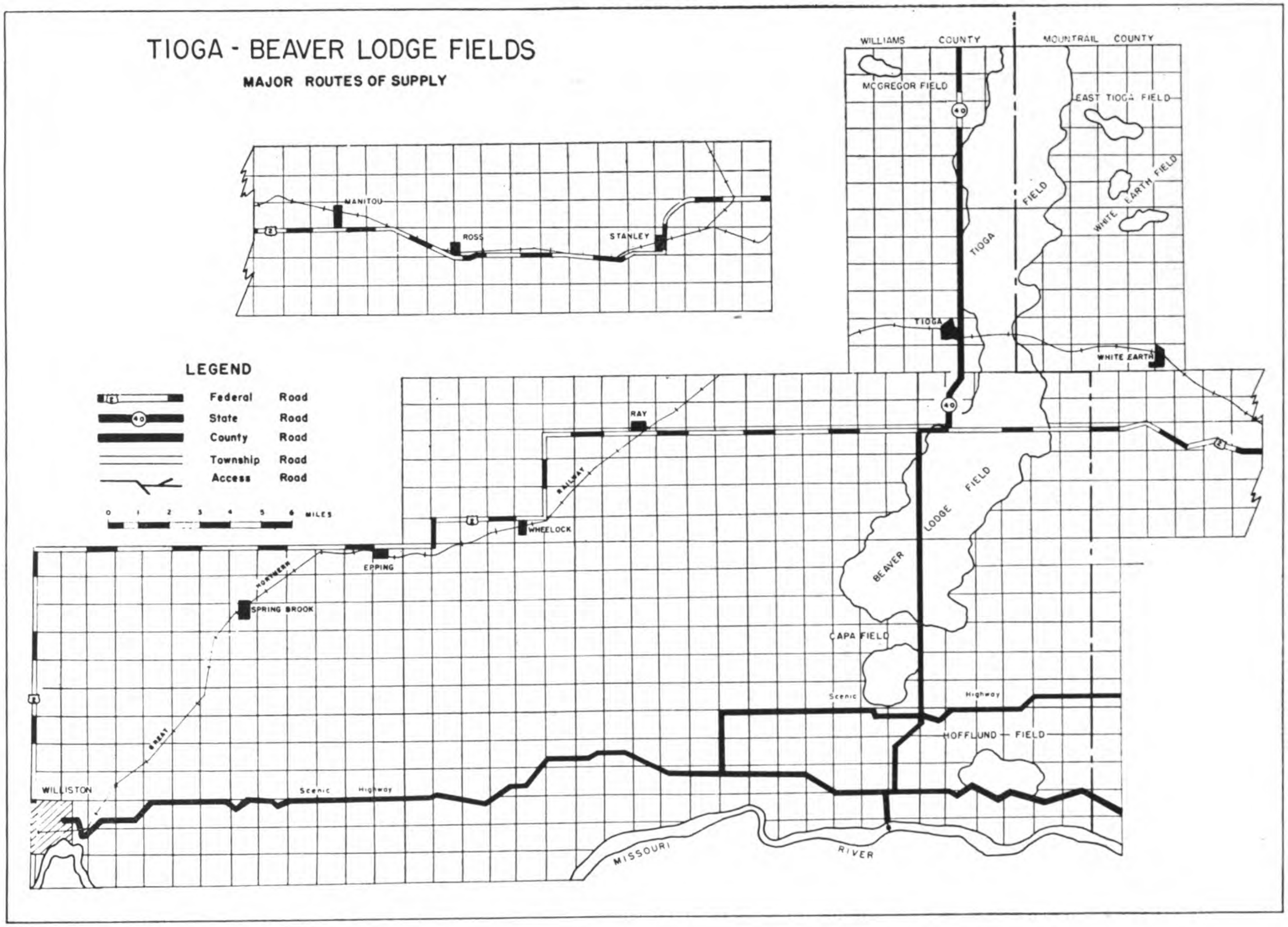
TIOGA - BEAVER LODGE FIELDS
MAJOR ROUTES OF SUPPLY
LEGEND
Federal Road
State Road
County Road
Township Road
Access Road
0 1 2 3 4 5 6 MILES
WILLIAMS COUNTY
MOUNTRAIL COUNTY
McGREGOR FIELD
EAST TIOGA FIELD
WHITE EARTH FIELD
TIOGA FIELD
TIOGA
WHITE EARTH
BEAVER LODGE FIELD
CAPA FIELD
HOFFLUND — FIELD
MANITOU
ROSS
STANLEY
RAY
WHEELOCK
EPPING
SPRING BROOK
WILLISTON
GREAT NORTHERN RAILWAY
Scenic Highway
MISSOURI RIVER
40
2

Fig. 5 — *Tioga-Beaver Ledge Fields: Major Routes of Supply*

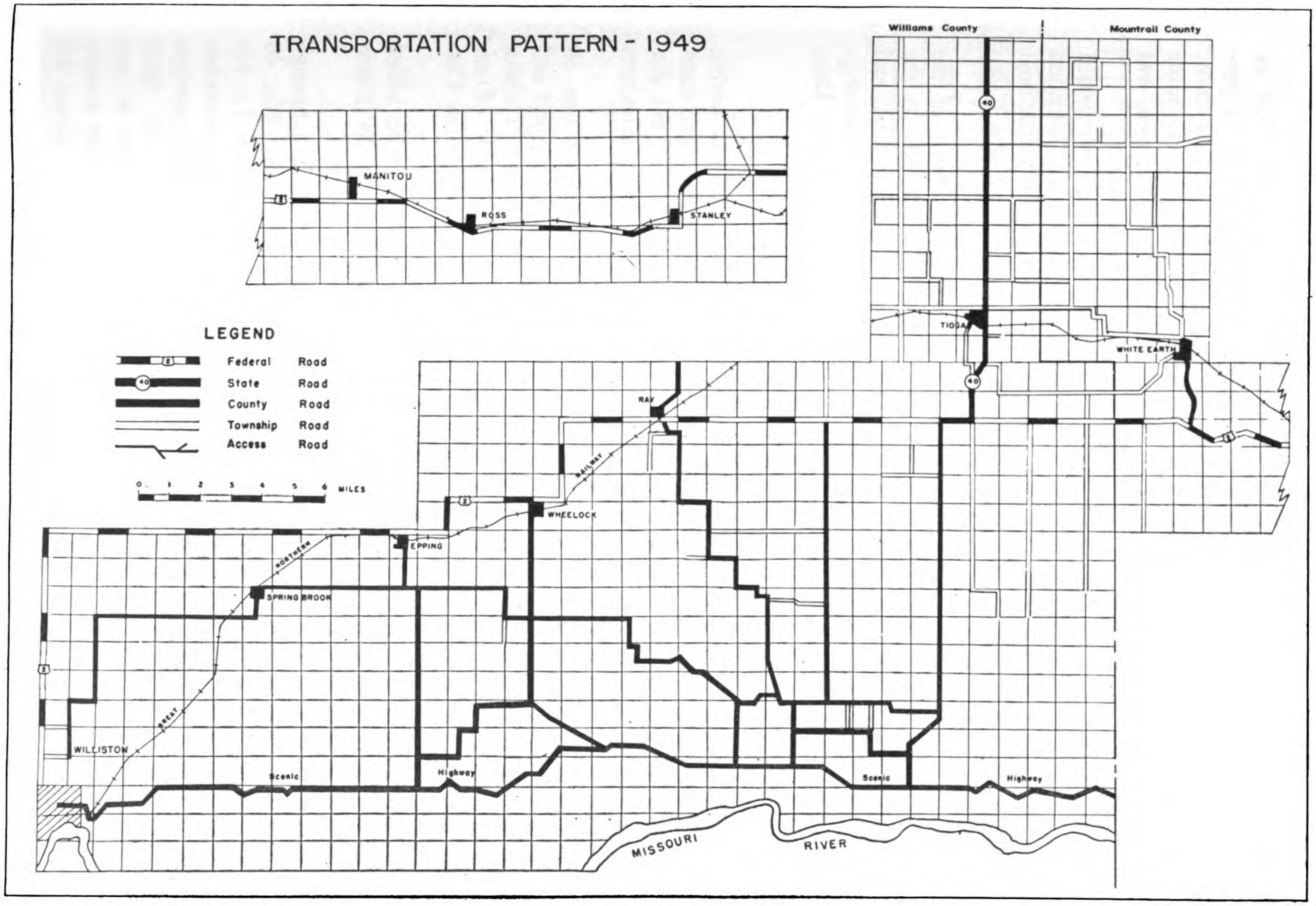
TRANSPORTATION PATTERN - 1949
Williams County
Mountrail County
MANITOU
ROSS
STANLEY
TIOGA
WHITE EARTH
RAY
WHEELOCK
EPPING
SPRING BROOK
WILLISTON
GREAT NORTHERN RAILWAY
2
40
8
LEGEND
Federal Road
State Road
County Road
Township Road
Access Road
0 1 2 3 4 5 6 MILES
Scenic Highway
Scenic Highway
MISSOURI RIVER

FIG. 6 — *Transportation Pattern, 1949*

Comparison of Road Patterns, 1949 and 1954

A comparative study of the road systems of 1949 and 1954 as shown in Figures 5 and 6 point out three significant facts: (1) as previously stated, the basic road patterns remained unchanged, (2) most of the construction occurred within the oil producing districts, (3) most of the construction consisted of well-access roads, although there was some extension and improvement of township and county roads.

It may be noticed that the maps in Figures 5 and 6 show certain patterns which are identical on each of those but which are omitted from Figure 4. Figure 4 shows the major arteries, and the additional roads shown on Figures 5 and 6, while very important locally, are tributary to the major routes.

One relatively minor change in road pattern occurred south of the Beaver Lodge Field. Here new construction in 1954 resulted in the rerouting of the Scenic Highway two miles northward, in that area, and thence eastward along the southern boundary of Dry Fork Township. The older road was abandoned to the backwaters of the Garrison Dam project.

Road Patterns Within the Oil Fields

Figures 7 and 8 show in considerable detail the road patterns within the oil producing districts, as of July, 1954. It is significant that most of the road mileage shown on these maps is a direct result of oil discovery and development. For the most part these roads are well-access roads and feeder lines to the major routes of travel.

These roads are graded and are intended for all-weather use although some are lacking in special surfacing. Many are scoria topped and some are gravelled. The added mileage due to oil development is about 100 miles, and this added mileage is almost entirely the result of expenditures by the oil interests, particularly the Amerada Petroleum Corporation, which controls about 85% of the production.

As shown on the maps, most of the oil wells, and most of the added road mileage, are found in 8 townships. Six of those are in Williams County and two are in Mountrail.

Traffic Flow—Traffic count data are available for 1950 through June, 1954, for U. S. Highway No. 2; but for State Highway No. 40 the data are available only for the years 1951 and 1953 (TABLE I). No traffic count data are available for roads of the county system, nevertheless certain roads of the county system do carry a considerable portion of the traffic, including the oil traffic. This is especially true of those in the Beaver Lodge Field, and on the basis of field observation it may reasonably be assumed that the traffic count on certain of the county roads, such as the Ferry Road, would approximate the figures given for State Highway No. 40.

An analysis of Table I shows a pronounced increase in vehicular traffic for each of the years following the discovery of oil. However, it

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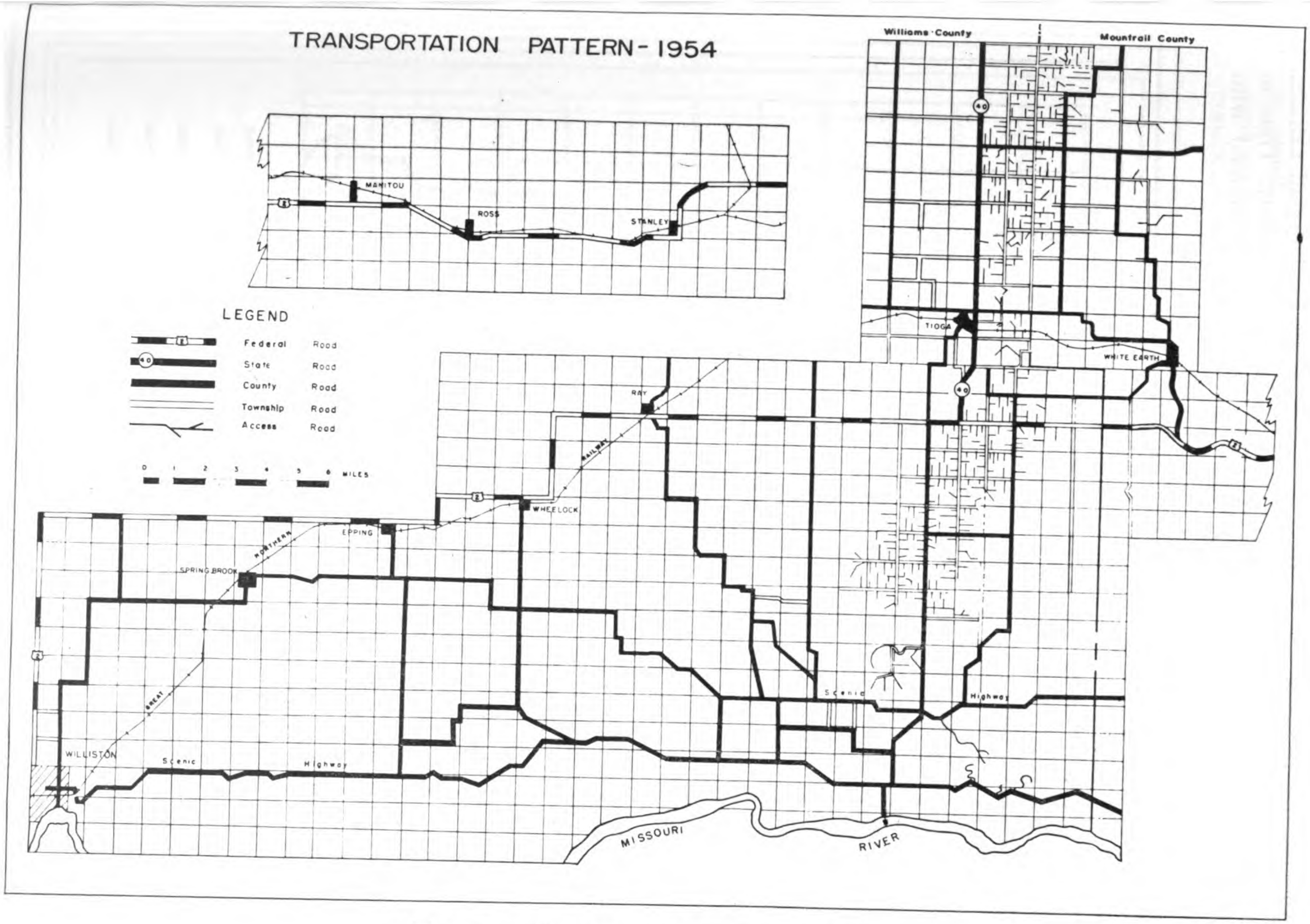
TRANSPORTATION PATTERN - 1954
Williams County
Mountrail County
MANITOU
ROSS
STANLEY
LEGEND
Federal Road
State Road
County Road
Township Road
Access Road
0 1 2 3 4 5 6 MILES
TIOGA
WHITE EARTH
RAY
RAILWAY
WHEELOCK
EPPING
NORTHERN
SPRING BROOK
GREAT
WILLISTON
Scenic Highway
Scenic
Highway
MISSOURI RIVER
40
2

FIG. 7 — *Transportation Pattern, 1954*

is necessary to remember that this increase in traffic includes all vehicles using the roads, not merely those involved in the oil activity. Thus to a certain, but to an indeterminate, amount other factors combined with the oil activity to account for the increases.

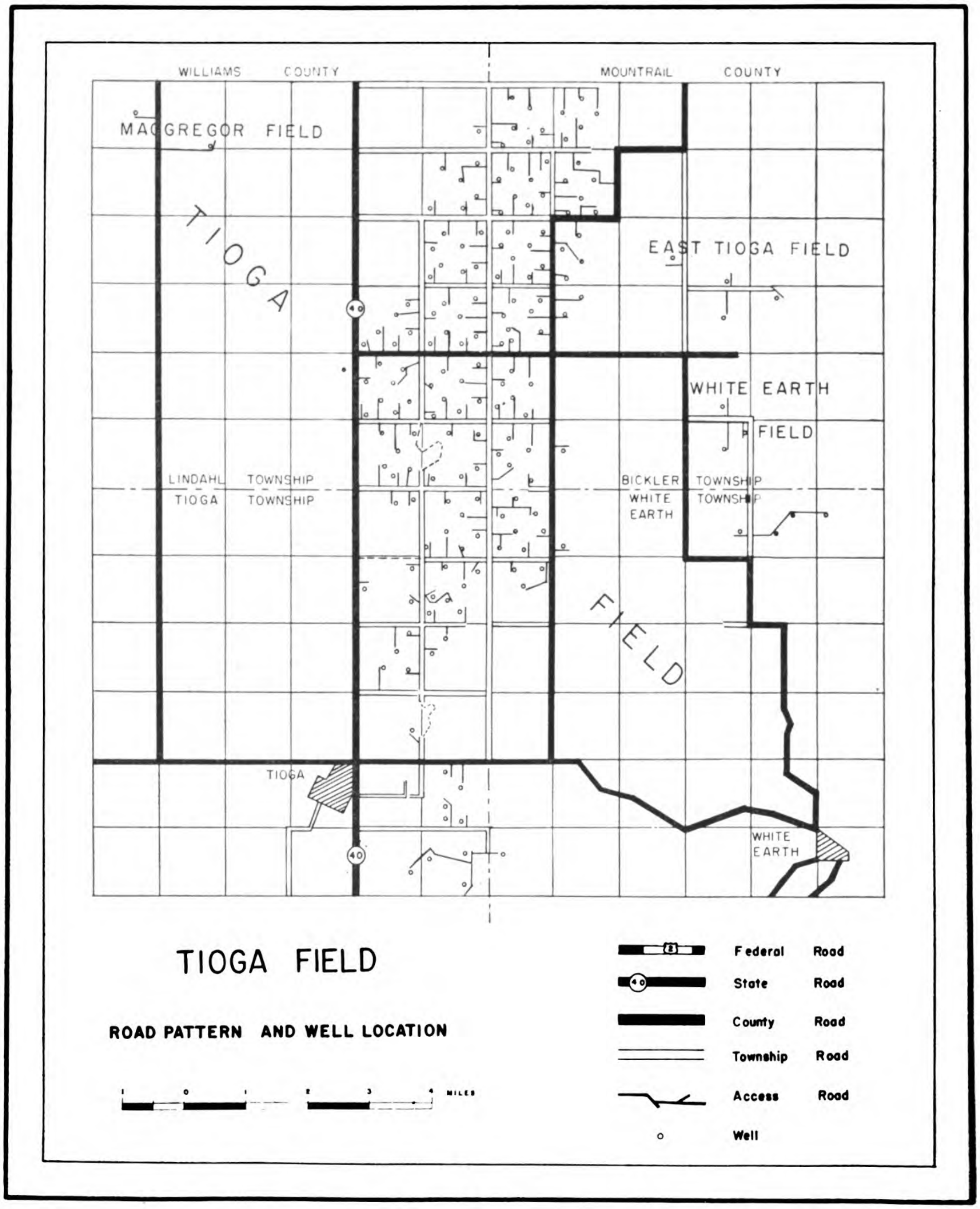
WILLIAMS COUNTY
MOUNTRAIL COUNTY
MACGREGOR FIELD
TIOGA
EAST TIOGA FIELD
40
WHITE EARTH FIELD
LINDAHL TOWNSHIP
TIOGA TOWNSHIP
BICKLER TOWNSHIP
WHITE EARTH TOWNSHIP
WHITE EARTH
FIELD
TIOGA
40
WHITE EARTH
TIOGA FIELD
ROAD PATTERN AND WELL LOCATION
1 0 1 2 3 4 MILES
Federal Road
State Road
County Road
Township Road
Access Road
Well

FIG. 8 — *Tioga Field: Road Pattern and Well Location*

Perhaps more important than volume of traffic and its increase, as results of oil development, was the increase in weights of vehicles used on the roads. Oil drilling rigs and associated equipment are very ponderous and weighty, and heavy loads on heavy trucks and dollies

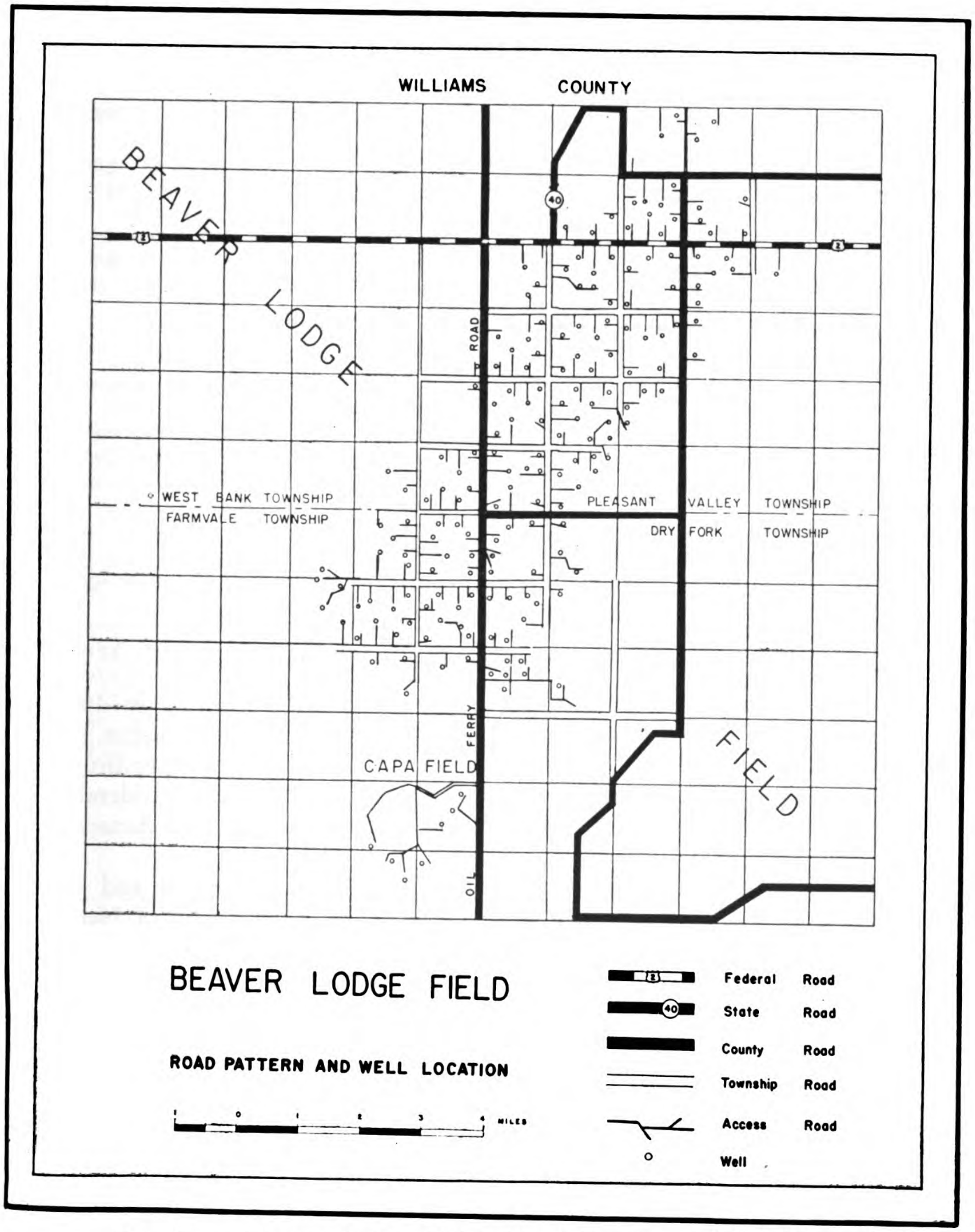
WILLIAMS COUNTY
BEAVER LODGE FIELD
2
40
FERRY ROAD
OIL
WEST BANK TOWNSHIP
FARMVALE TOWNSHIP
PLEASANT VALLEY TOWNSHIP
DRY FORK TOWNSHIP
CAPA FIELD
BEAVER LODGE FIELD
ROAD PATTERN AND WELL LOCATION
1 0 1 2 3 4 MILES
Federal Road
State Road
County Road
Township Road
Access Road
Well

FIG. 9 — *Beaver Lodge Field: Road Pattern and Well Location*

are an integral part of oil development. Thus, almost every facet of the oil program brought increased burdens and wear upon a road system which had been built to serve a relatively simple agricultural economy.

Table I

TRAFFIC COUNT DATA—U. S. HIGHWAY NO. 2
WILLISTON TO STANLEY

Comparison of Average Daily Trafifc for All Days of each month at Automatic Traffic Counter

	1950	1951	1952	1953	1954
January	335	437	450	936	766
February	370	417	641	968	909
March	502	356	749	1060	928
April	697	814	1200	1346	1103
May	630	815	1236	1361	1185
June	929	1043	1473	1767	1688
July	1194	1265	1854	1961	
August	1176	1253	1860	2125	
September	1011	1016	1498	1732	
October	828	923	1389	1464	
November	665	800	1219	1162	
December	541	500	1084	924	
Annual Average 24 Hr. Traffic	740	809	1221	1401	....

State Highway No. 40—Annual Average 24 Hr. Traffic.

1951—	Junction No. 2 to Tioga	610
	Tioga to McGregor Junction	370
1953—	Junction No. 2 to Tioga	2615
	Tioga to McGregor Junction	590

Roadway Construction and Maintenance

Road construction in the area under survey was renewed in 1951 following the discovery of oil. New road construction by Williams and Mountrail counties was insignificant for their highway expenditures were directed to maintenance of existing roads. However, considerable construction was done by the state of North Dakota and by the Amerada Petroleum Corporation.

Table II shows actual expenditures for road construction and for maintenance during the period 1950—June, 1954, by the state of North Dakota, by Amerada Petroleum Corporation and by Williams County. The expenditures by Williams County are almost entirely for maintenance. Table III shows the expenditures for Williams County by the state of North Dakota for each year.

An analysis of these tables shows a significant increase in expenditures during the period of oil development. Percentagewise the greatest costs are involved in routine surface operations.

As in the case of increased traffic, not all of the increase in maintenance costs can be attributed to the oil development program, but that the oil program contributed cannot be questioned.

The harshness of the cold winter season and one of its effects on road maintenance is evidenced by the percentage of maintenance costs involved in controlling snow and ice. For the four-year period 1950-1954 approximately 15 per cent of all maintenance expenditures were so utilized.

Table II

N. D. HIGHWAY CONSTRUCTION COSTS, JANUARY, 1950 TO JUNE, 1954 BY AGENCY AND BY TYPE OF EXPENDITURE

State of North Dakota

Highway No. 40		
Tioga to Jct. ½ mile south of McGregor	(1952)—14 miles	$ 18,002.30
Tioga Jct. to Tioga	(1953)— 3½ miles	36,772.63
Highway No. 2		
Ross to Stanley	(1953)— 8 miles	81,151.82
Tioga Jct. to Ross	(1953)—18 miles	241,304.27
Ray east to Tioga Jct.	(1954)—10½ miles	145,428.25
		$ 522,661.27

MAINTENANCE AND CONSTRUCTION

Amerada Petroleum Corporation

Period from April, 1950 to June, 1954

Construction of Roads	$ 475,285.43
Maintenance of Roads	121,604.06
Removal of Snow	42,986.00
	$ 639,875.49

ROAD AND BRIDGE EXPENDITURES

Williams County

	Federal Aid	Other Road Expenditures—County
1954-55	$ 62,535.36	$ 380,281.70
1953-54	105,633.36	291,491.25
1952-53	55,970.86	257,596.78
1951-52		236,312.97
1950-51		259,231.16
	$224,140.18	$1,424,913.86
		224,140.18
		$1,649,154.04

Pipelines:

The preceding discussion has dealt solely with surface transportation, and in the early days of the oil development program that was the only means of transportation, even for the crude oil. By 1955, however, virtually all of the crude produced in the study area was being transported by buried pipe lines.

The system is as follows: In the oil fields there is a collection system wherein pipe lines three or four inches in diameter, lead from the wells to larger (six and eight inch) main lines which carry the oil to Tioga. At Tioga there is a pumping station which starts the oil on its way to Mandan, North Dakota, approximately 175 miles distant. From Tioga the oil moves southward through a ten inch line to the Ramberg pumping station in the Beaver Lodge field. From there the line extends southward as a 12 inch line approximately 70 miles to the Keene pumping station south of the Missouri River. From Keene the oil is pumped southeastward approximately 95 miles through a 16 inch line to Mandan where it is refined in the 30,000 barrels-per-day capacity Standard Oil Refinery.

Table III

MAINTENANCE EXPENDITURES FOR WILLIAMS COUNTY
BY THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT, 1950-1954

	1950	1951	1952	1953
Routine Roadway Surface Operations	$16,822.00	$15,598.00	$37,045.00	$49,737.00
Shoulders and Side Approaches	76.00	19.00	77.00	216.00
Roadside and Drainage	3,068.00	2,848.00	3,869.00	2,469.00
Removal of Weeds and Brush	1,651.00	2,324.00	2,692.00	4,386.00
Traffic Services	1,005.00	3,113.00	1,673.00	5,728.00
Sand, Ice and Snow Control	1,332.00	1,662.00	1,691.00	2,115.00
Sand, Ice and Snow Removal	5,379.00	6,263.00	5,742.00	4,291.00
Prorated Accounts	1,098.00	915.00	2,861.00	2,344.00
Special Roadway Surface Operations	....	....	26,205.00	....
	$30,432.00	$32,742.00	$81,856.00	$71,286.00

January through June, 1954

Routine Roadway Surface Operations	$15,674.00
Roadside and Drainage	566.00
Removal of Weeds and Brush	134.00
Traffic Services	2,465.00
Sand, Ice and Snow Control	547.00
Sand, Ice and Snow Removal	1,919.00
	$21,305.00

Similarly the natural gas from the oil fields, formerly "flared" into the atmosphere, is now brought by a pipe line collection system to the Signal Oil and Gas Company's Tioga-Beaver Lodge Gasoline plant at Tioga where propane, butane, natural gasoline and sulphur are extracted from the gas. The remaining "sweetened" natural gas is sent by pipe line for domestic and industrial uses to points east as far as Minot, west to Williston.

Surplus gas not used when produced is piped into Montana where it is returned underground into natural storage.

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[1] This "scoria" is not that of most geologic literature, but is the term applied locally to a naturally baked clay bed.

POPULATION CHARACTERISTICS OF WILLIAMS AND MOUNTRAIL COUNTIES[1]

In recent decades, North Dakota has been one of those few states experiencing a decline in population. This fact has in large measure resulted from the prevailing character of the American agricultural scene, in a state where a relatively narrow agricultural economy is dominant. Fewer and larger farms with an increase in the numbers of non-resident farm operators has resulted in a steady decline in rural settlement with an accompanying increase in the urban areas, and an exodus of youth from the state due to limited opportunities. The development of any newly found resources is bound to stimulate hope in such an area. This trait has been notable in the enthusiastic manner with which the opening of the Williston Oil Basin was greeted. The population features associated with this event provide an indication of how such developments may or may not assist in easing the state's problems.

General Characteristics:

Williams and Mountrail Counties, the principal counties affected by the oil industry to 1954, have traditionally been noted for their wheat and cattle industries. Reflecting the extensive system of land use essential in this subhumid zone, the settlement pattern consisted of dispersed farmsteads, occasional hamlets, and a single small urban center. Then, as now, the population of both counties were classified as rural farm or rural non-farm with the lone exception of Williston. Since 1930, the general trend in population has seen a steady decline in rural farm residents, a fairly constant population level being maintained in the rural-nonfarm hamlets, and a constant rise occurring in Williston.

It is against this distribution of people that the recent alterations in terms of arrangement and numbers developed. The effects of the oil industry have brought numerous changes to this general area; however, significant developments have been limited to a rather small portion of the two counties. This area where the bulk of activity has taken place includes Williston, functioning as the supply and service center; Tioga, Tioga Environs, and Ray, the small villages located in the heart of the oil area, all in Williams County; the Impact Townships of both counties; and the county seat of Mountrail County, Stanley (FIGURE 2). These centers will on occasion be referred to as the oil affected areas.

The Number of Inhabitants

Between 1950 and 1954, the population of Williams County increased by 26.8% while that of Mountrail County decreased by 5.5% (TABLE IV)[2]. However, a basic pattern of change existed in both counties. The statewide trend of declining rural numbers persisted here, both within the oil impact townships and throughout the remainder of the rural area. In marked contrast to this rural reduction is the sharp increase noted in each of those nonfarm centers affected by the oil development.

Table IV

WILLISTON BASIN AREA: NUMBER OF INHABITANTS 1950-1954

	Population			Per Cent Change	
WILLIAMS:	1940	1950	1954	1940-50	1950-54
Williston	5,790	7,378	9,717	+27.4	+ 31.7
Ray	579	721	1,479	+24.5	+105.1
Tioga	385	456	1,608	+18.4	+252.6
Tioga Environs	....	....	931	....	....
Impact Townships[1]	1,915	1,392	1,236	—27.3	— 11.2
Other Rural[2]	6,018	4,923	4,372	—18.2	— 11.2
Hamlets	1,628	1,572	1,500	— 3.4	— 4.6
Total Williams County	16,315	16,442	20,843	+ 0.8	+ 26.8
Total Oil Areas[3]	8,669	9,947	14,971	+14.7	+ 50.5
MOUNTRAIL:					
Stanley	1,058	1,486	1,645	+40.5	+ 10.7
Impact Townships[1]	720	562	528	—21.9	— 6.0
Other Rural[2]	6,362	4,675	4,224	—26.5	— 9.6
Hamlets	2,342	2,695	2,500	+15.1	— 7.2
Total Mountrail County	10,482	9,418	8,897	+10.1	— 5.5
Total Oil Areas[3]	1,778	2,048	2,173	+15.2	+ 6.1

[1] Depicted in Fig. 2.

[2] Rural farm areas other than impact townships.

[3] Williston, Ray, Tioga, Tioga Environs, Impact Townships in Williams County. Stanley and Impact Townships in Mountrail County.

SOURCE: 1940—United States Bureau of the Census.
1950—United States Bureau of the Census.
1954—Projections from sample census.

Rates of increase in these centers reflect their location with respect to the principal areas of interest and the functions which each center performed in this development. Tioga, Tioga Environs, and Ray benefited enormously as logical sites for settling migrants involved in the establishment and operation of the fields. Williston became the central supply and focal point for the oil industry, while Stanley absorbed the overflow resulting from crowded facilities in the other, more ideally located, towns.

In general it would seem that Williams County has, at least for the present, benefited considerably in terms of population change. Mountrail County, on the other hand, exhibits a pattern typical at the moment of most rural North Dakota counties, with the steady rural decline and the relatively slight but steady growth of the county seat. This general picture of alterations in population directly reflects the advantages possessed by Williams County as the area of principal interest and the logical site for location of installations and personnel.

Age and Sex Composition

While all of those areas affected by the oil industry possessed a net population increase, with the exception of the rural impact townships, the relative importance of that increase varied from area to area as noted above. This same pattern exists with reference to the proportions of people in the several age groups. In general, those areas most affected, the rural non-farm villages, showed significant relative increases in the younger age groups. Two age groups are particularly notable: first, that from 20-29 years with 19.6% of the total population in 1954 against 12.9% in 1950, and secondly, that from 0-4 with 18.1% in 1954 compared with 11.1% in 1950. (TABLES V, VI, VII). This pattern would seem to reflect the oil industries' need for a considerable youthful element in the labor force, composed in this instance of young married men whose children were within the youngest age category.

Complementing these changes was the relative decline in the other age groups. Most significant of these was the sharp decline in the oldest group, those over 65 years of age. The trend in these rural non-farm centers was towards a much more youthful population level.

Urban Williston possessed a stabler pattern, though relative increases enhanced the importance of the 0-4 and 5-19 groups. Again the complementing factor was a decline in the 30-64 and 65 age groups.

In contrast to these non-farm centers, the rural impact townships retained expected rural characteristics. Reflecting the continuing agricultural occupation of the people, a generally older age pattern existed. No marked changes occurred in the age groups between 1950 and 1954.

The age composition of these oil affected areas indicates the extent to which individual areas were altered by these developments. As the impact of the new industry increased in terms of areas, more pronounced effects on the age groupings were felt, with a trend to a younger age level.

Significant changes in the ratio of men to women are not apparent. Both the total and relative importance of each group remained relatively constant in population totals, age group totals, and between the several areas concerned. The one notable exception to this characteristic occurs in Williston where in the 20-29 age group, the number of males increased whereas the relative number of females declined markedly.

Marital Status and Relation to Head of Household

Marital status characteristics varied considerably from area to area, depending in large measure upon the type of activities carried on and upon the intensity of the oil industry's impact. In general, there is a higher percentage of married males in the more urbanized areas while the reverse is true for females, though on a much reduced scale (TABLE VIII). In the former case, about 40% of the rural-farm male population was single compared with only 17-20% of the women in such areas. In the urban area the figure for both sexes is similar, about 20%. In the rural non-farm areas, these figures vary considerably depending upon the stability of the area; for example, in Tioga 28.9% of the men were single whereas in Ray 21.5% were single. Similar variations might be noted, but the pattern remains essentially that of the generalization stated above.

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Table V

WILLISTON: NUMBER OF INHABITANTS BY AGE AND SEX, 1950 AND 1954

	MALE				FEMALE				TOTAL			
Age Groups	1950		1954		1950		1954		1950		1954	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0- 4	485	13.1	785	15.9	420	11.4	713	14.9	905	12.3	1498	15.4
5-19	861	23.3	1191	24.1	878	23.8	1359	28.4	1739	23.6	2550	26.2
20-29	543	14.7	805	16.3	629	17.1	665	13.9	1172	15.9	1470	15.1
30-64	1405	38.1	1720	34.8	1411	38.3	1651	34.5	2816	38.2	3371	34.7
65 and over	400	10.8	346	7.0	346	9.4	297	6.2	746	10.0	643	6.6
No data	....	....	89	1.9	....	......	96	2.1	....	....	185	2.0
TOTAL	3694	100.0	4936	100.0	3684	100.0	4781	100.0	7378	100.0	9717	100.0

SOURCE: 1950 United States Bureau of the Census. 1954 Projections from sample census.

Table VI

RURAL NONFARM:* NUMBER OF INHABITANTS BY AGE AND SEX, 1950 AND 1954

	MALE				FEMALE				TOTAL			
Age Groups	1950		1954		1950		1954		1950		1954	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0- 4	150	10.8	507	16.7	145	11.4	518	19.8	295	11.1	1025	18.1
5-19	351	25.2	703	23.1	362	28.5	645	24.6	713	26.8	1348	23.8
20-29	174	12.5	556	18.3	169	13.3	555	21.2	343	12.9	1111	19.6
30-64	510	36.6	962	31.6	460	36.2	682	26.0	970	36.4	1644	29.0
65 and over	208	14.9	134	4.4	134	10.6	147	5.6	342	12.8	281	4.9
No Data	....	....	179	5.9	....	......	75	2.8	....	....	254	4.6
TOTAL	1393	100.0	3041	100.0	1270	100.0	2622	100.0	2663	100.0	5663	100.0

*Ray, Tioga, Tioga Environs, Stanley.

SOURCE: 1950 United States Bureau of the Census. 1954 Projections from sample census.

Table VII

RURAL FARM:* NUMBER OF INHABITANTS BY AGE AND SEX, 1950 AND 1954

	MALE				FEMALE				TOTAL			
Age Groups	1950		1954		1950		1954		1950		1954	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0- 4	131	11.8	104	10.4	124	14.6	100	13.2	255	13.0	204	11.6
5-19	272	24.6	268	26.8	240	28.3	224	29.3	512	26.2	492	27.8
20-29	139	12.6	124	12.4	105	12.4	108	14.2	244	12.5	232	13.1
30-64	444	40.1	412	41.3	315	37.1	264	34.6	759	38.8	676	38.3
65 and over	120	10.9	84	8.3	64	7.6	64	8.3	184	9.5	148	8.5
No Data	....	....	8	0.8	....	......	4	0.4	....	....	12	0.7
TOTAL	1106	100.0	992	100.0	848	100.0	760	100.0	1954	100.0	1764	100.0

*Impact Townships of Williams and Mountrail County

SOURCE: 1950 United States Department of Commerce 1954 Projections from sample census.

Relation to the head of the family presents a relatively constant picture throughout the counties. Certain variations from the standard are notable, however, as for instance the higher percentages of sons than daughters in the rural farm areas; no doubt this is an adjustment to the labor requirements inherent in agriculture (TABLE IX). Lodgers

Table VIII

PERCENT DISTRIBUTION OF MARITAL STATUS FOR THOSE 14 YEARS OF AGE AND OVER, 1954

	Williston	Ray	Tioga	Tioga Environs	Stanley	Williams County	Mountrail County
MALE (number)	3262	503	641	354	569	496	204
Marital Status							
Married	73.6	73.0	56.0	64.6	70.6	54.8	54.9
Single	20.6	21.5	28.9	21.5	25.4	40.3	39.2
Divorced or separated	0.4	0.6	1.5	....	....	....	....
Widowed	4.3	1.8	3.0	....	4.0	3.2	5.9
No Data	0.1	3.1	10.5	13.9	....	1.6	....
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
FEMALE (number)	3140	429	446	241	557	352	160
Marital Status							
Married	71.2	80.0	78.9	96.1	64.9	75.0	67.5
Single	18.3	11.4	13.5	3.9	18.0	17.0	20.0
Divorced or separated	1.4	2.1	....	....	0.5	....	2.5
Widowed	8.5	5.7	7.0	....	9.5	6.8	10.0
No Data	0.6	0.7	0.5	....	7.1	1.1	....
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MALE & FEMALE (number)	6402	932	1087	595	1126	848	364
Marital Status							
Married	72.4	76.2	65.4	76.9	67.7	63.2	60.4
Single	19.4	16.8	22.6	14.6	21.6	30.7	30.8
Divorced or separated	0.9	1.3	0.9	....	0.2	....	1.1
Widowed	6.4	3.6	4.7	....	6.8	4.7	7.7
No Data	0.4	2.0	6.4	8.5	3.6	1.4	....
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

Table IX

PERCENT DISTRIBUTION OF RELATION TO HEAD OF FAMILY, 1954

	Williston	Ray	Tioga	Tioga Environs	Stanley	Impact Areas Williams & Mountrail
Head	27.5	26.6	25.1	28.7	28.3	26.1
Wife	22.5	23.9	21.7	23.8	23.1	20.0
Son	21.8	26.2	21.1	18.8	21.7	28.6
Daughter	20.8	18.5	20.2	20.8	21.0	18.6
Lodger-Hired Worker	2.1	3.5	8.8	6.4	3.7	0.7
Relatives	2.1	1.2	2.2	0.5	1.9	5.4
No Data	3.2	....	0.7	1.0	0.3	0.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
(Number)	9717	1479	1608	931	1645	1764

SOURCE: Projections from sample census.

and hired workers as members of households are found in the area of maximum migratory labor, the rural non-farm centers.

Persons and Families by Dwelling Types

The relative stability of population numbers is in part indicated by the type of dwelling occupied (TABLE X). In basically more stable areas such as Williston and the rural farm impact townships, dwelling types were almost exclusively of a permanent single or multiple nature.

Table X

NUMBER AND PERCENT OF PERSONS BY RESIDENCE TYPE, 1954

		Total Persons	Single Persons	Trailer Persons	Multiple Persons	Other Persons
Williston	Number	9717	7025	408	2274	10
	Percent	100.0	72.3	4.2	23.4	0.1
Ray	Number	1479	686	558	229	6
	Percent	100.0	46.4	37.7	15.5	0.4
Tioga	Number	1608	1093	343	172	......
	Percent	100.0	68.0	21.3	10.7	......
Tioga	Number	931	253	465	100	113
Environs	Percent	100.0	27.2	50.0	10.7	12.1
Stanley	Number	1645	1073	321	239	12
	Percent	100.0	65.2	19.5	14.5	0.8
Impact	Number	1236	1205	17	14	......
Williams	Percent	100.0	97.5	1.4	1.1	......
Impact	Number	528	528	......	....	......
Mountrail	Percent	100.0	100.0	......	....	......

SOURCE: Projections from sample census.

However, in those areas of maximum relative recent population increase, the rural non-farm centers, this pattern is in large measure reversed. Here, the recent importation of labor for development and operation of the oil fields has resulted in severe taxing of available permanent dwellings. Here also have settled those workers whose jobs are in large part related to the development of a single aspect of the installations and whose tenure in a given area is likely to be of a rather short duration. As a consequence the number of trailers was of great significance in those areas. In 1954 in Ray 37.7% of the population occupied trailers, in Tioga 21.3%, and in the Tioga Environs 50%. Multiple dwellings are of recent origin in all of these areas except Williston, where this type of dwelling is more common. The numbers living in multiple dwellings becomes progressively less as less urbanized conditions are encountered.

The average household size throughout the area of study was relatively constant (SEE TABLE XI). Larger household units (3.8) were found in rural farm areas, the smaller in the more urbanized areas (3.65). This pattern is roughly similar to the general range of household sizes normally found.

Migration Characteristics:

The bulk of the population increase in Williams and Mountrail

Table XI

NUMBER AND PERCENT OF FAMILIES, BY RESIDENCE TYPE, AND AVERAGE HOUSEHOLD SIZE, 1954

		Total Families	Single Families	Trailer Families	Multiple Families	Other Families	Average Household Families
Williston	Number	2662	1858	112	689	3	3.65
	Percent	100.0	69.8	4.2	25.9	0.1	
Ray	Number	390	192	145	50	3	3.79
	Percent	100.0	49.2	37.1	12.9	0.8	
Tioga	Number	433	297	102	34	......	3.71
	Percent	100.0	68.7	23.5	7.8	......	
Tioga	Number	248	68	135	9	36	3.75
Environs	Percent	100.0	27.3	54.5	3.6	14.6	
Stanley	Number	467	305	82	71	9	3.52
	Percent	100.0	65.4	17.6	15.1	1.9	
Impact	Number	325	312	8	5	......	3.80
Williams	Percent	100.0	96.0	2.6	1.3	......	
Impact	Number	136	136	......	......	......	3.87
Mountrail	Percent	100.0	100.0	......	......	......	

SOURCE: Projections from sample census.

Counties has resulted from in-migration stimulated by the development of the oil industry. The general pattern throughout the area of study reflects the degree to which the industry has affected each of these areas. As would be expected, the rural farm impact townships have been the stablest areas, with slightly over 80% of their population having been resident in 1950 (TABLE XII). Williston, the largest and most diverse center, had 66.7% of its 1954 population having been resident in 1950. Stanley, the least affected of the rural non-farm areas had 61.4% of its population then resident. Ray and Tioga, both basically altered in character by the proximity of the fields, had 39.7% and 34.6% respectively having been resident in 1950. Tioga Environs has the distinction of having been nonexistent in 1950, hence owing its new settlement exclusively to the oil industry.

Each of these areas drew a part of its population increase from nearby tributary areas; however, the bulk of the increase was attracted from some distance. A portion of these in-migrants came from the remainder of North Dakota and from contiguous states. However, very considerable proportions have come from more remote states, mainly the principal oil states of the southern Great Plains. In this latter category, 10.2% of Williston's 1954 population, 44% of Ray's, 21.4% of Tioga's, and 55.6% of Tioga Environs were attracted from these more distant points. By and large, these individuals were permanently connected with the larger oil companies engaged in the development of the Williston Oil Basin, and in some considerable part might be considered a floating element of the population; that is, being continually on call for transfer to some new site of development. The importance of this group and the nature of their functions will probably be reflected in the persistent

Table XII

PERCENT DISTRIBUTION OF INHABITANTS BY 1950 RESIDENCE

	Williston	Ray	Tioga	Tioga Environs	Stanley	Williams County	Mountrail County
MALE:							
Same	66.7	36.8	35.2	....	59.1	83.8	85.7
Within Area	4.9	4.7	9.8	10.3	10.1	4.8	3.2
Other North Dakota	11.4	8.5	25.4	24.4	16.0	0.6	7.9
Contiguous States	5.6	2.3	8.5	6.4	3.4	3.0	1.6
All Other	11.2	47.7	21.1	58.9	11.3	7.8	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(Number)	4151	650	805	382	697	648	248
FEMALE:							
Same	66.8	43.2	33.9	....	63.6	76.0	77.8
Within Area	5.9	5.7	12.9	7.8	12.8	9.1	13.0
Other North Dakota	13.0	9.7	23.4	35.9	12.8	0.8	7.4
Continguous States	5.1	1.7	8.1	4.7	3.1	4.1	1.8
All Other	9.3	39.7	21.7	51.6	9.1	8.0	....
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(Number)	4068	525	578	296	705	460	204
MALE AND FEMALE:							
Same	66.7	39.7	34.6	....	61.4	80.1	82.1
Within Area	5.4	5.2	11.2	9.2	11.4	6.6	7.7
Other North Dakota	12.2	9.0	24.5	29.6	14.3	0.7	7.7
Contiguous States	5.4	2.1	8.3	5.6	2.7	3.5	1.7
All Other	10.2	44.0	21.4	55.6	10.0	8.7	.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(Number)	8219	1175	1383	678	1402	1108	452

SOURCE: Projections from sample census.

shifts and fluctuations of the population totals of the centers where they are now resident.

The bulk of the in-migrants to this area were in the age groups from 5-9, 20-29, and 30-39 years, again reflecting the relatively youthful manpower needs of the industry and the composition of these workers' families (TABLE XIII). In terms of the male-female ratio, the total in-migrants were about 55% male and 45% female.

Employment and Labor Force Characteristics

The current characteristics of the population's economic activities are dealt with in a later section of this report. The concern here is with the changes in industry group status of workers as indicated by their activities in 1950 and 1954.

In the urban area, Williston, the industrial group categories showing the greatest increase were mining and construction, trade and services. The increases in these categories reflect initially the development of the oil fields and secondly the increases in those activities which directly serve the industry and the individuals employed by the industry. In general, recruits into these activities were drawn rather equally from original residents of the area and from migrants. (TABLES XIV, XV).

Table XIII

PERCENT DISTRIBUTION OF INHABITANTS BY AGE
BY 1950 RESIDENCE

	5-9	10-13	14	15-19	20-29	30-39	40-49	50-64	65 & Over	No Data	TOTAL
WILLISTON:											
Resident	13.1	9.3	1.7	8.7	12.6	15.8	13.1	14.3	9.9	1.5	100.0
Migrant	18.5	5.8	0.8	4.1	31.6	22.5	9.2	4.7	2.4	0.4	100.0
No Data	2.3	2.3	....	13.7	38.6	31.8	9.1	2.2	....	....	100.0
RAY:											
Resident	9.3	7.6	2.3	8.1	19.7	9.9	13.4	11.2	17.4	1.1	100.0
Migrant	18.0	7.0	1.5	6.5	34.5	25.5	4.0	3.0	....	....	100.0
No Data	......	......	....	......	33.3	50.0	......	16.7	......	....	100.0
TIOGA AND TIOGA ENVIRONS:											
Resident	12.7	6.9	2.3	11.2	15.0	15.4	15.8	8.5	10.8	0.8	100.0
Migrant	15.5	6.7	1.5	5.7	26.8	23.2	12.8	3.7	0.2	3.9	100.0
No Data	......	......	7.4	11.1	29.7	11.1	22.2	18.5	....	....	100.0
STANLEY:											
Resident	9.6	8.1	3.8	10.2	15.0	9.3	12.3	13.8	12.6	5.3	100.0
Migrant	19.7	4.9	....	4.9	37.7	23.8	6.5	1.6	....	0.9	100.0
No Data	4.8	14.3	4.8	4.8	19.1	43.0	......	9.2	....	....	100.0
WILLIAMS AND MOUNTRAIL COUNTY:											
Resident	13.6	8.3	1.2	8.0	12.4	13.6	14.2	16.9	10.9	0.9	100.0
Migrant	24.4	4.9	2.4	4.9	30.0	19.6	2.4	9.8	2.4	....	100.0
No Data	......	8.3	....	16.7	33.3	16.7	8.3	16.7	....	....	100.0

Table XIV

WILLISTON: RESIDENCE AND INDUSTRY GROUP FOR
EMPLOYED PERSONS, 1950 AND 1954

	Residents		Migrants		No Data		Total	
Industry	1950	1954	1950	1954	1950	1954	1950	1954
Agriculture	247	214	94	25	....	....	341	239
Mining & Construction	176	305	204	292	....	16	380	613
Manufacturing-Durable	13	9	4	12	....	....	17	21
Manufacturing-Non-Durable	36	66	24	21	....	4	60	91
Transportation, Communications, & Public Utilities	357	401	69	107	....	4	426	512
Trade	421	603	78	263	....	65	499	931
Finance, Insurance & Real Estate	57	89	25	32	....	8	82	129
Service	386	458	66	107	....	21	452	586
Public Administration	439	98	262	48	....	16	701	162
No Data	200	83	131	49	....	....	331	132
TOTAL	2332	2326	957	956	....	134	3289	3416

SOURCE: Projections from sample census.

Industrial group classifications for those workers residing within the oil field itself (rural non-farm and rural farm) indicated a simpler pattern. The major change occurred in the mining and construction category, which accounted for 16.2% of the workers in 1950 and 37.4%

in 1954. Much more moderate changes were characteristic of the other categories.

Table XV

IMPACT AREAS OTHER THAN WILLISTON: RESIDENCE AND INDUSTRY GROUP FOR EMPLOYED PERSONS, 1950 AND 1954

Ray, Tioga & Tioga Environs, Stanley, Williams & Mountrail Impact Townships:

	Residents		Migrants		No Data		Total	
Industry	1950	1954	1950	1954	1950	1954	1950	1954
Agriculture	639	641	99	31	....	12	738	684
Mining & Construction	81	199	314	658	....	123	395	980
Manufacturing-Durable	....	....	6	....	....	....	6	....
Manufacturing-Non-Durable	3	5	11	....	....	....	14	5
Mining & Construction	81	199	314	658	....	123	395	980
Transportation, Communications & Public Utilities	79	112	41	79	....	6	120	197
Trade	168	243	88	131	....	6	256	380
Finance, Insurance & Real Estate	9	20	6	12	....	....	15	32
Service	72	133	45	60	....	3	117	196
Public Administration	228	43	188	11	....	5	416	59
No Data	147	32	213	46	....	6	360	84
TOTAL	1426	1428	1011	1028	....	161	2437	2617

SOURCE: Projections from sample census.

Indicated Changes 1954-1955

During the summer of 1955, a field survey was made to observe changes occurring since the exhaustive field study of 1954, from which the foregoing statistics were derived. The impression left by this check survey and reinforced by the statements of numerous residents of the area was that a contraction in activities had developed.

Available evidence indicates that the peak of the oil boom was experienced during the summer of 1954, followed by a decline initiated by the exit of refinery and pipe line construction workers, and rig crews as drilling moved south of the Missouri River. In a more positive sense, the attitude was simply that the area was reaching a level of stability adjusted to the present apparent potentials of the area and the likely exploitation of the oil resource in the near future.

The significance of this would seem to lie in the characteristic labor demands of the oil industry. During the exploration and development stages a very sizable labor force is required. However, this long term phase following that initial development, that is, the production stage, is marked by much reduced labor requirements in a rather highly mechanized industry. This character of the industry remains valid as long as subsidiary industries based on the resource do not locate in the area. As of this writing such developments have not taken place.

Population trends during the year following the field study and census are distinctly downward. The extent of this decline varies markedly from area to area with the most notable changes having occurred in

Ray and Tioga Environs. In the former, a local official estimated that the decline had reached something over 300 people. This estimate was supported by a count of the temporary housing units in Ray which revealed the following: of the four trailer courts within the town limits, one remained full; a second had 23 units, compared to a 1954 peak of 59; and the fourth had 13 units; a third had 33 units, compared to a 1954 peak of 102 units; a third had 33 units, compared to a peak of 59; and the fourth had 13 units and a capacity of 18. Ray's decline is further supported by such events as the mid-year cancelling of one of the two original first grade sections in the local school, the considerable number (17 of 34) of empty units in a modern housing development of duplexes, and the fact that just five new permanent residences were built during the period from September, 1954 to July, 1955.

Similar patterns are evident on a lesser scale in the other centers. It would seem that the centers in question are reaching a lower but more stable population level which is likely to persist for some time.

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[1] This section was written by Richard V. Smith. It is based upon the data collected by the University of North Dakota field research team in the summer of 1954.

[2] Appendix I is devoted to a discussion of the methods used in obtaining 1954 figures.

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POLITICAL IMPACT

by Ross B. Talbot

I. *Introduction: Scope, Method, and Limitations*

Just what politics are; where they begin; where do, and should they end, have been questions of endless controversy over ages of time. If we can believe Lucy Stark—the courageous but bewildered wife of Willie Stark in Robert Penn Warren's *All the King's Men*[1]—politics eventually entwines itself in every phase of human affairs, even the most private. But this study of the politics of oil in the Williston Basin is vastly more limited in scope than that. Essentially it will attempt to do four things—show how oil has caused the formation of new political associations and modified existing ones; describe the impact of oil upon existing units of government; explain the formation and execution of oil policy; and analyze the effects of oil upon the existing political power structure. In all instances the description and analysis is necessarily somewhat general.

This is not the place to enter into a controversy about empiricism versus values, but basically this study is empirical. It may proceed somewhat contrary to accepted scientific method as no hypotheses will be advanced except during the last two sections of this chapter. Consequently much of the study is descriptive. This is admittedly a somewhat "safer" method for the social scientist but it has advantages. In a relatively unexplored field, description is necessary in order to provide an adequate frame of reference. Subsequently, it is then possible to be analytical in a more meaningful manner.

Lastly, it must be understood that the writer is not a physical scientist and not a student in the technology of oil. Many of the issues to be discussed in this chapter—well spacing, compulsory unitization, and other geological and geophysical issues—are well beyond the technical competence of the social scientist. Where such matters remain in the physical realm an attempt will be made to describe, in general terms, the conflicting attitudes, coupled with some information on the actions of other states in comparable matters. However, where these issues enter into the governmental process the discussion will be more analytical. This dichotomy between the areas of the responsibility of the physical and social scientists is difficult to define, and just as difificult to abide by, but a careful attempt will be made not to make judgments where no empirical evidence is advanced, and not to tread in technical fields of knowledge where the author has no competence.

II. *A Brief Survey of North Dakota Politics and Government*

The North Dakota political scene has some unique features of its own, so a brief, general statement seems necessary at this point.

Since joining the Union, North Dakota has been a one-party state. That is, one political party—in this instance the Republican party—has practically dominated the politics of the state. In only two instances since the turn of the century have Democrats been elected to the office of governor[2] and both times that was with the considerable aid of dissident Republican elements. In the 1955 session of the State Legislature the Democrats had four of its party candidates elected to the Senate and that was such an extraordinary event that the members actually caucussed once.

As is almost invariably true in one-party states, the primary election is the "real" election. Candidates in the Republican column who are nominated in the June primary are almost always elected in the November general election. Furthermore, and as is usually the case, the dominant party is divided into factions. In North Dakota the two principal factions of the Republican party have been the Non-Partisan League (NPL) and the Republican Organizing Committee (ROC). In one form or another, this division has existed in North Dakota politics since the formation of the NPL in 1915. Some names of organizations have changed; leadership dominates, then wanes; but the basic division seems to continue. However, and this is where oil politics presently plays a role and may play a more important one, there are many and varied forms of political discontent in North Dakota at the present time. The NPL is split into what might conventionally be termed liberal and conservative factions;[3] the ROC is divided into those who want to dissolve the factions and amalgamate into a single Republican party and those who are quite satisfied with the status quo; the Democratic party is largely controlled by conservatives who are not very dynamic in their party activities, but a younger, energetic, liberal group is actively attempting to gain control; there is a small, but powerful, group in the State Senate who consider themselves to be "genuine" Republicans and these individuals are seeking to erase the factionalism within the Republican party if it will enhance their interests.

To further complicate the political scene, the North Dakota Farmers Union has, since 1947, played a forceful, albeit somewhat erratic, role in state politics. Political associations—more commonly termed "pressure groups," or "interest groups"—are exceedingly common and often immensely powerful in the American political scene but the Farmers Union is somewhat unique.[4] North Dakota is the most predominantly agrarian state in the United States and, in 1954, the Farmers Union had 42,233 dues-paying members out of a total population—21 years and over (1950)—of 366,590. Numerically, the Farmers Union is the largest pressure group in North Dakota and generally conceded to be by far the most effectively organized. As will be discussed later, this organization is definitely involved in the oil politics of the State. Its postition is sometimes rather ambiguous and unpredictable but this is probably due to an ironic sequence of events. The strength of the Farmers

Union is west of the Red River Valley and it is very powerful in the Williston Basin area. However, its left to left-of-center ideology has been somewhat rebuked, where oil legislation is involved, by farmers who have oil on their land or, more importantly, are certain that they will have.

Another feature of the North Dakota political scene which impressed this author during his research was the amount of intra-state sectionalism in North Dakota politics. This phenomenon seems more apparent in western North Dakota than elsewhere. There seems to prevail an attitude, notably among the political leaders, that political strategy must be based to an important degree upon their own sectional interests. Political alignments and re-alignments are often discussed in just those terms. Here, again, we shall see the impact of oil politics.

The governmental system of North Dakota—state, city, county, and special districts—is not particularly different from the National political pattern. However, a brief description of one feature of the state government is necessary due to its impact upon oil politics. The theory of separation of powers, coupled with a system of checks and balances, has been carried to such lengths in North Dakota that many of the state executive officers constitute what has been termed, in another instance, "the headless fourth branch of government." That is, many heads of departments and commissions are elected and thereby not constitutionally responsible to the governor, or are selected in such a manner that executive responsibility becomes most difficult. This diffusion of political authority and responsibility has, as will be explained later, been an important factor in the development of oil policy, and its subsequent administration.

III. *Oil and the Legislative Process*

Oil was discovered in North Dakota not long after the adjournment of the 1951 Session. This meant that no action would be taken on the development of new oil policies until early 1953, unless the Governor decided to call a special session. The issue was not terribly and immediately pressing. There was already in the North Dakota statutes a 1941 law providing for the regulation of the production and conservation of oil but it was apparent that 1953 would be a crucial year. Important questions had to be acted on—taxes, well-spacing, administrative authority, conservation practices, etc. The political factions began to sound about as political observers predicted, with the latter basing their judgments on historical observations. The ROC desired a low tax in order to foster, from their viewpoint, an "infant" industry and thereby attract more capital into North Dakota. The NPL was in a dilemma. The oil companies were, to some NPL legislators, predatory interlopers, but to those who represented the areas where oil was flowing, or likely to be, the issue was not so simple. An economic basis of politics quickly manifested itself in the form of a "pork chopper" attitude and the radicalism of some of the NPL'ers subsided rather considerably, particularly in regards to oil taxes.

The Formation of New Pressure Groups

As would be expected, oil brought into formation new pressure groups. Of these, the most powerful are the North Dakota Oil and Gas Association (hereafter NDOGA) and the Williams County Land Owners and Royalty Owners Association (WCLOA). Newer, and of less influence thus far, are the Tioga Land Owners Association, the North Dakota Independent Producers and Royalty Owners Association, and the McKenzie County Mineral Owners Association.

The NDOGA was formally organized in Bismarck, North Dakota, on August 21, 1952.[5] It is an unincorporated, non-profit association and designed to assist in the discovery, production, development, and conservation of oil and gas in the State. Membership is restricted to corporations, partnerships, or associations who are engaged in any phase of the oil industry. Membership is $25.00 per year and each represented enterprise is restricted to one vote, although it may purchase any number of memberships for its officers and employees. At an annual convention, a Board of Directors composed of 40 members is elected. After receiving the nominations of a Nominating Committee, the Board selects the executive officers, including the President; the President then appoints a ten-person Executive Committee with the advice and consent of the Board. The office staff is a full-time Executive Secretary and a clerk-typist, although, during the legislative sessions, lobbyists are employed to represent the organization.[6] By the summer of 1955 the NDOGA had 400 members and this included practically all the major oil producers in the United States, as well as representatives of other phases of the oil industry, and officers from most of the major banks in Williston, Bismarck, Minot, and Jamestown. Besides attempting to influence the formation and administration of oil policy the organization conducts a public relations campaign aimed at the general public and its own members. A monthly *News Letter* is rather extensively distributed; the *Proration Schedules and Oil Production Reports* of the State Industrial Commission are disseminated to the NDOGA members, as are other pertinent and important publications. Oil displays are organized and displayed at fairs, conventions, and other such gatherings throughout the state.

The Williams County Land Owners and Royalty Owners Association was formed as a counteracting influence to the NDOGA and creates what David Truman has termed a "competing claim" relative to the latter organization.[7] In the opinion of the WCLOA the other interest group represents the "majors" (the large oil companies) and thereby, in some instances, the NDOGA overlooks, or disregards, the interests of the owner of the land on which oil is, or may be, produced.

From all appearances the WCLOA is not nearly as well organized or administered as the NDOGA. Membership is $5.00 a year and ap-

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parently there have been as many as 400-500 members. However, the records were not available to the writer. Annual meetings are held; a seven-person board is elected; and, since the origin of the WCLOA, Mr. Iver Solberg, State Senator from Williams County and a farmer-landowner near Ray, has been its President. To some extent the seemingly rather inefficient operation of the WCLOA is due to its limited objectives. Apparently the principal, if not the sole, purpose of the organization is to fight the major oil companies on the spacing issue. This controversy will be elaborated on later in this chapter.

Oil and the North Dakota Legislative Research Center

The North Dakota Senate had in 1951, by the passage of Senate Resolution 6, instructed the Legislative Research Committee to study and make recommendations to the next legislature relative to the issue of the development, taxation, and conservation of oil, along with other resources.[8] This Committee is comprised of six members of the House, five from the Senate. Since its inception in 1945 it has been used extensively and effectively for the study of problems which are usually important but contentious. The full Committee generally appoints a sub-committee to make the actual study. In this instance two Senators—Mr. Clyde Duffy and Mr. Iver Solberg, along with one Representative—Mr. R. H. Lynch—constituted the sub-committee. Three public hearings were held—two in Bismarck and the other in Williston; advice and material was secured from the Interstate Oil Compact Commission; Dr. Wilson Laird, State Geologist, made an on-the-spot study of oil regulations and administration in some of the major oil producing states; and the Research Director, Mr. C. Emerson Murry, along with members of the sub-committee, drafted 13 legislative measures concerned with oil. Several of the proposed bills need not concern us here but it is necessary to note the principal features of the proposed bill for the taxation of gas and oil:

1. A gross production tax was recommended rather than an ad valorem tax. The latter would have been very difficult to administer as accurate assessments of unproduced oil is hazardous, if not impossible.
2. The tax rate was set at 4¼%—4% on the value of the oil when produced and the ¼% for costs of administering the regulatory program, although this latter amount was not to be ear-marked but to go into the State's General Fund.
3. The oil tax revenues, excluding the one-quarter per cent, were to be allocated as follows:
    a. of the first $200,000 in tax revenues, 75% to the county where the oil was produced and 25% into the state's general fund.
    b. for the next $200,000 the recommended allocation was 50-50.

c. thereafter the state was to be allocated 75% and the county 25%.

The full committee reported out this tax bill with unanimous agreement. It had drafted a bill which, in the opinion of the Committee, protected the interests of the State and local governmental units but at the same time did not discourage the oil producers from a rapid and efficient development of oil resources. A gross production tax rate of 5% was proposed but it was finally lowered one notch to encourage the oil producers to drill with full speed.[9] Also, the bill provided for no exemptions from property taxes except for the permanent equipment of the well-site and the oil itself.

The allocation of tax revenues was also debated. The system of redistribution seemed to favor the oil producing counties more than was true in other states (for example, in Oklahoma the ratio is 80-20 in favor of the state). However, Senator Solberg, who represented Williams County in the Senate, believed that the real property tax base would not increase rapidly enough to provide the increased revenue that would be needed for roads, schools, etc. His position prevailed.

The Committee adopted, essentially, the "model" oil and gas conservation bill that had been drafted by the Interstate Oil Compact Commission.[10] This proposed regulatory act grants considerable authority to the state agency that is responsible for its administration. However, the Committee did not include the compulsory, field-wide unitization feature of the model act—in substance, this permits, under certain circumstances, an oil field to be operated as a single unit under a single operator—but it did provide for voluntary unitization and also included provisions for the determination of market demand and the regulation of oil production.

The Alignment of Political Forces of the 1953 Session

A brief account of the confusion and delay in organizing both houses of the State Legislature needs to be included herein as the outcome had a considerable impact on the subsequent oil legislation.

In the Senate, no faction had a clear majority. There were 49 senators. The ROC controlled 24 votes; the NPL had 21. There were three dissident Republicans—Carroll Day, Franklin Page, and Kenneth Pyle—and there was a solitary Democrat, Mrs. Harry O'Brien. The ROC could have organized the Senate with one more vote, but, for reasons that need not be advanced in this study, the ROC chose not to invite any of the four to its caucus. After some consternation and delay it was agreed between the NPL and the four that they would form a coalition, with R. M. Streibel as majority floor leader, and organize the Senate. This was done and the coalition never split its vote, that is, not on issues that had been previously decided upon in caucus, except on the gross oil production tax bill.

Organizing the House was hardly less confusing. Briefly, the NPL had a clear majority but its intra-factional split was becoming more and more obvious. When the House NPL members caucussed for Speaker of the House, Mr. Halvor Rolfsrud was nominated. However, Rolfsrud represented the insurgent element of the NPL. The "Old Guard" group was determined not to be thwarted so its leaders entered into an agreement with the House ROC members to support Walter Bubel, an "Old Guard" Leaguer, as Speaker. This idea prevailed and when the vote was counted in the House it was 69 for Bubel, 40 for Rolfsrud, three passed and one did not vote.[11] Thus, the coalition of ROC—Old Guard Leaguers controlled the House during the 1953 session.

The "ifs" of history are usually interesting, albeit perhaps useless, but a different legislative organization would almost certainly have produced different oil legislation.

The Enactment of Oil Legislation at the 1953 Session

There was very little doubt in any politician's mind that oil was to be a, if not the, major political issue at the 1953 legislature session. It also seemed reasonably clear that the usual political compromises would have to be made. The ROC was rather definitely committed to a low oil tax in order, from its point of view, to aid the growth and development of an oil industry in North Dakota.[12] The insurgent NPL'ers believed that large capital investors, nearly all of them from out-of-state, were moving into North Dakota to exploit a natural resource which actually, according to their "picture"—to use Lippmann's term—belonged to all the people of the state. There were other conceptions of course, and of those two just stated, some legislators probably used them as rationalizations in order to disguise their own self-interest. Also, an oil tax makes an excellent political issue in the sense of personal popularity and prestige and this factor can never be overlooked in understanding the political process in a democracy.

The Legislative Research Committee's gross oil production tax bill was introduced on January 16, 1955, became Senate Bill Number 41, and was sent to the Committee on Finance and Taxation.[13] Forty-four days later (February 8, 1953) the bill emerged "without recommendation" for passage after the adoption of about two pages of amendments. The most vital change was the proposal of a 5¾% gross production tax with ½ of 1% for administration of the tax. While the bill was in Committee the lobbyists had been laboring diligently. Mr. C. E. Boone, a vice-president of Amerada Oil Corporation and a skilled lobbyist, maintained an office at Bismarck during all of the session. In his testimony before the Senate Finance Committee on January 27, he recommended a 3¼% gross oil production tax. Mr. William Pearce, a Bismarck attorney representing the NDOGA, declared any such tax to be unconstitutional as it taxed owners instead of property. Mr. Harold Pollman, lobbyist for the WCLOA, testified, on February 8, in favor of a 4¼% tax if the oil producers, including the landowners, were permitted a 27½% depletion allowance.[14] The position of the Farmers

Union was somewhat ambiguous. At its 1951 State Convention, the Union had advocated a "moderate" severance tax on oil.[15] After Mr. Quentin Burdick, counsel for the North Dakota Farmers Union, had completed his trip through the oil states he wrote a series of articles for the *North Dakota Union Farmer* in the last of which he stated that "it is the writer's opinion, that in no event should the initial tax be less than 5%."[16] At the Senate hearings on S.B. 14, Burdick testified in favor of a 6, 7, or 8% gross production tax if there was to be a depletion allowance, but, apparently, not claiming then to represent the Farmers Union.[17] Mr. Alex Lind, a longtime North Dakota politician, principal lobbyist for the Farmers Union, a resident of Williston, and a landowner in Williams County, was a persistent advocate of a tax no higher than 4¼%. During this period, according to the late Senator Day, the Senate coalition group had caucussed and decided to push for a 6¼% tax reasoning that, in the opinion of the caucus, "The Standard Oil Company of Indiana could stand more tax."[18] In any respect the proposed amendments were voted on the next day and adopted but not before Senator J. A. Bridston (5th District—Grand Forks County) had moved for a 4¼% tax.[19] However, Senator Gilman Klefstad (ROC) made a substitute motion for 5% and Bridston then withdrew his motion. The vote on the substitute motion was 24-25. The Coalition had not lost a vote. After the clincher motion was applied by Senator R. M. Streibel, S.B. 41 went to the House.[20] Political pressure continued to be applied. The Williston Junior Chamber of Commerce conducted a statewide newspaper advertising campaign favoring a 4¼% tax and a 27½% depletion allowance.

Then, on February 28, 250 western North Dakota farmers and businessmen "snake danced" through the Senate and House Chambers demonstrating in favor of a 4¼% tax.[21] Prior to that energetic procedure, this group had held a meeting with Mr. Harry Polk as chairman, in the Bismarck City Auditorium. Of the approximately 300 persons present, newspapermen estimated, from a show of hands, that about three-fourths of the demonstrators were farmers. There was counter-agitation on March 1st when 25 persons, primarily Farmers Union county and local officers from Burke and Divide Counties, attended a House hearing and advocated "at least 5¾%."[22] But, on March 3rd, the House Committee on Finance and Taxation voted out S.B. 41 with a recommended 4¼% tax, and the next day the vote on accepting the amendment was 70-41 in favor. Of the Representatives from Williams, Mountrail, and McKenzie Counties (at that time the "oil Counties") only Mr. T. O. Rodhe of New Town voted against the lower tax, and on the vote for final passage, 81-14, Mr. Rodhe did not vote at all. Thus, if the Senate Coalition group refused to accept the lower tax, the bill would have to go to Conference Committee. At this juncture the oil lobbyists, led in this instance by W. S. Davidson, Sr., President of the American State Bank in Williston, threatened to file recall petitions against Senator Solberg unless he changed his vote. In fact, several interviewers stated that Davidson stood directly behind Solberg (the latter's Senate seat being right next to the outer rail) with recall petitions in hand while the vote was being taken. Solberg switched; the vote was 25-24 in favor of the House Amendment; and the oil tax was to be 4¼%.[23] The ROC Governor, C. Norman Brunsdale, was a leading advocate of the lower tax so a veto was not even considered a possibility. Senator Day, in an interview with the author in Judy, 1955, claimed that even Mr. C. E. Boone, after consulting his superiors in the Amerada Petroleum Corporation, had agreed to accept 5¼%. (He also made this statement at a talk given in the Spring of 1953 at the University of North Dakota.) Further, he claimed that at no time during the Senate hearings was there a single pressure group that was willing to support the 6¼% tax advocated by the Senate Coalition.

S.B. 41 was the "showdown" bill, so to speak, for all oil legislation and it proved to be the only instance in which the Coalition refused to abide by a decision made in its caucus.[24] On the issue of depletion allowances, Senators Clyde Duffy and Milton Rue introduced S.B. 89 and S.B. 203, respectively. Rue's bill was indefinitely postponed. The legislative process concerning S.B. 89 was rather comparable with S.B. 41. The bill was reported out of the Senate Committee on Finance and Taxation with a "do pass" recommendation for a 27½% depletion allowance. Senator Streibel moved to change it to 25% and his motion passed. After Senator Rue attempted to rescind the change, and failed, S.B. 89 passed the Senate by 49-0. Then the House changed the bill back to 27½%. On March 3rd, the Senate concurred again by a vote of 25-24 as Senator Solberg switched his vote although Senators Hagen and Olson continued to vote with the Coalition. However, Senator Day insisted that the Coalition group decided not to make a concerted fight for the lower depletion allowance.

S.B. 32 was the "model" oil and gas conservation bill. Although an extremely important and potent piece of legislation it did not encounter any considerable difficulties in either House. As stated earlier in this Chapter, the compulsory unitization feature was deleted but oil lobbyists appearing before the Legislative Research Committee were agreeable to voluntary unitization. The Committee on Natural Resources in both Houses made only minor changes. In the Senate hearings on the bill, Mr. Harold Pollman and Mr. Milton Higgins testified in favor of including a 40 acre spacing provision in the law. Dr. Wilson Laird, State Geologist, testified to the contrary, that is, he advocated that the Industrial Commission be authorized to make administrative rulings as to proper spacing—such was then, and still is, the procedure. Mr. Boone stated that the issue should be decided between landowners and operators.[25] Charges and denials between Mr. Higgins and Dr. Laird apparently became rather heated but the Committee made no changes in regard to spacing procedure.

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S.B. 35 was introduced by the Legislative Research Committee and was designed to regulate oil brokers. A few of the brokers had proven to be unethical and financially irresponsible so the use of the State's police power seemed necessary to the Committee. There was some discussion of licensing the oil brokers, but this seemed to pose several administrative difficulties and it would not have necessarily enabled the injured parties to have received any compensation. The bill was passed after considerable opposition and a substantial number of amendments. The NDOGA opposed the bill and Harold Pollman, representing the WCLOA, recommended licensing of oil brokers rather than bonding. The former organization apparently testified against S.B. 35 in order to get the support of the small oil producers for S.B. 32. When the Senate Judiciary Committee completed its hearing it recommended that the $10,000 bonding provision be changed to $3,000. The Senate and House approved this change, along with several others, and the bill received little other opposition.

There were other "oil" bills of some importance that were introduced and passed at the 1953 Legislative Session but the process outlined above accounts for the most important and controversial items of oil legislation.

The Relative Inactivity of the 1955 Session

The "built-in" confusion of the North Dakota political system continued in the 1955 legislative session. The 1954 elections brought rather moderate successes for the ROC. Its majority in the House was substantial—the ROC nominee for Speaker being elected 64-45, four members not voting. But in the Senate, the Coalition of 1953 was again successfully formed. The NPL had maintained its strong minority group; the "independent" Republicans had lost one cohort—Senator Pyle, but there were now three Democrats in the Senate and toward the end of the session that figure was increased by the special election of another Democrat. Senator Day was elected the leader of the Coalition group.

The 1955 Session encountered a substantial number of serious problems but the issues concerning oil were very few. This situation was probably created by two main factors. With the two Houses controlled, in essence, by opposite factions it was rather evident that no major policy changes would be made in the field of oil. Also, public opinion—in the sense of interested and articulate groups—on the oil issue was sort of at the fulcrum point. The initial lust and enthusiasm for oil had rather died away as drilling was greatly diminished and "dry holes" became more frequent. The politician was not too certain how to move on the oil issue. This was a year of watching and waiting. But a few interesting pieces of oil legislation were introduced, although none by the Legislative Research Committee.

Senators Solberg, Dewing, Hagen and Olson dropped in a bill on January 27, 1955, to prohibit the flaring of gas. This became S.B. 148 and it had a short but lively career. Many persons in the state, and in the State Legislature, were increasingly concerned about the flaring of natural gas in the oil fields. For some considerable time the gas had been flared at the well-site but by the late summer of 1954 the Signal Oil and Gas Company had completed its plant at Tioga. After that development the gas was piped into the Signal plant whereupon the butane, propane, and sulphur were removed but the natural gas that remained was still burned. Only a few days before Senator Solberg's bill was introduced, he, and several other Senators, had offered concurrent Senate Resolution "H" which urged the effective utilization of natural gas and stated that approximately 30 million cubic feet of gas was being flared each day in North Dakota oil fields, including the Signal plant.[26] Just what Senator Solberg and the other Senators had in mind when they introduced S.B. 148 is not known positively by the writer but it seems fairly clear that it was an attempt to bring pressure upon Amerada and the Montana-Dakota Utilities Company, or some other utility, to negotiate a contract for the sale of the gas. The bill prevented the flaring of refined or dry natural gas and imposed a fine of $500 a day on each violator. Mr. Pearce (NDOGA), Mr. Richard Cook (Superintendent, Signal Oil and Gas Company), and Mr. C. E. Boone (Amerada) testified before the Senate Committee on Industry and Business that passage of the bill would force the cessation of production of both crude oil and natural gas; that no other state had such a law; and that there were not any adequate storage facilities for natural gas in North Dakota. Then on February 8, the Montana-Dakota Utilities Company announced that it had consummated a contract with Amerada, subject to the approval of the North Dakota Public Service Commission, for the purchase of all the gas produced at the Signal plant. The following day S.B. 148 was reported out of the Committee with a recommendation for indefinite postponement and such a report, in the North Dakota legislature, is tantamount to killing a bill.

Then, on January 28, Senators Schoeder, Berube, and Tuft—all of them influential in the Farmers Union—introduced a bill to increase the gross oil production tax by 2% and this additional revenue was all to go into the State's general fund. At its 1954 State Convention, the Farmers Union had proposed a "higher rate" for the oil production tax with the revenues to be used for "schools and social services."[27] At the January, 1955, meeting of the Farmers Union Board of Directors that group recommended to the legislature that the tax be increased to 6¼%. This recommendation was, in substance, the content of S.B. 181. However, in his biennial message to the state legislature in early January, 1955, Governor Brunsdale had opposed any increase in the gross oil production tax. Also, the Senate Coalition, in caucus, had decided not to make the oil tax an issue at the session ostensibly because the House was ROC and no increase in the tax had even a slim chance of passage. Furthermore, the Farmers Union seemed to be again working at cross purposes. Mr. Stanley Moore, the assistant lobbyist for the Farmers

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Union, was working hard to garner votes for S.B. 181 but Mr. Alex Lind seemed convinced that the existing tax was equitable, and conducted himself accordingly. Mr. Boone stated before the Senate Committee on Finance and Taxation that Amerada had a gross investment of $71,000,000 in North Dakota on which it had earned a profit of only $18,500,000 and claimed therefore that a tax increase was not justifiable. Mr. Ernest Fleck, an attorney for the NDOGA, was of like opinion and said that the oil industry had an investment of $450,000,000 in North Dakota but that the oil production rate in the state was less than one-half of one percent of United States production. Thus he agreed that the higher tax would only impede the growth of the oil industry in the state. The bill came out of committee "without recommendation" and, when the bill came before the Senate for action, Senator Hagen moved for indefinite postponement contending that a higher tax was "poor psychology, when we're trying to attract industry to our state."[28]

On January 31, Senator Day introduced a bill (S.B. 214) which would have authorized the Public Service Commission to regulate natural gas rates at the wellhead. As was the case with S.B. 148, the bill seemed designed to act as a further lever against the oil companies in an attempt to make them negotiate more rapidly for the utilization of the wasted natural gas. Also, as Senator Day remarked in a personal interview, "the bill might have been introduced to get natural gas for Grand Forks." In any respect the oil lobbyists acted quickly and sharply. Hearings were held in the evening in the famous Room 200 at the Patterson Hotel. Mr. William H. Hunt, the Texas oil multi-millionaire, flew in for the hearings. Mr. Pearce, representing the NDOGA, and several independent producers spoke against the bill by using the following arguments—no state has such a regulation; it would be difficult to administer; such a law would impede wildcatting, etc. Mr. Boone claimed that there was no monopoly in the production of natural gas.[29] The bill emerged from the Committee on February 16 with a recommendation for "indefinite postponement." Senator Dewing, a close friend and coalition supporter of Senator Day, moved that the Committee report be adopted and this was done without a roll call vote.

The 1955 Session of the State Legislature adjourned without acting on any other major oil bills, and of those that were considered none were passed.

IV. *The Administration of Oil Policy*

Before the beginning of this century, Woodrow Wilson theorized on the future role of public administration in modern government. He predicted correctly the increasing emphasis on bureaucracy and observed the hazards of attempting to separate politics from administration.[30] For, as some sage has remarked, "policy is often made in the interstices of administration." Thus it has been with the oil policy in North Dakota, to a certain extent. A legislature cannot foresee all of the facets and ramifications of the policies it enacts; so, wisely, the law in most instances is given sufficient flexibility to meet changing conditions. This means that when a legislature has adjourned the political process moves over to the administrative agencies and the struggle for control and influence continues.

In North Dakota there are principally four State administrative agencies concerned with the execution of oil policies—the Industrial Commission, State Geologist, Public Service Commission, and the Tax Commissioner.

A. The Industrial Commission

Both the 1941 and 1953 State laws for the control of oil and gas resources gave the Industrial Commission the primary authority for the formulation of oil conservation regulations. The Commission was created in 1919 for the primary purpose of supervising the state-owned industries. It is an exofficio organization composed of the Governor, Attorney General, and Commissioner of Agriculture and Labor. Because of its powers, and its control over some patronage, the Commission has always been kept closely in mind by the politicians when it comes to "slate-making time" at the pre-primary conventions. Since 1950, with the exception of the brief period that Mr. Paul Benson was Attorney General after the resignation of Mr. E. T. Christianson, the NPL has controlled the Industrial Commission, although not the office of Governor.[31] But in no instance, unless one includes the 1954 election of Mr. Leslie Burgum to the office of Attorney General, has the insurgent group in the NPL had much authority in the Industrial Commission. For better or worse, this situation has strongly affected policy. That is, the conservative Leaguers and the ROC have determined the Commission's actions. In the field of oil conservation the authority of the Commission is largely due to its powers of issuing drilling permits, determining market demand and regulating production, and deciding upon spacing issues. The Commission's procedure follows the rather set pattern that has been established in order to comply with the due process clause of the Fourteenth Amendment of the United States Constitution—due notice, hearing, appeals to the regular courts, etc. The principal problems of the Commission have been concerned with well spacing and market demand rulings, particularly the former.[32]

The oil spacing issue has been a lively one in North Dakota and still is. When a "pool" is determined for a particular area, the Commission makes a temporary spacing ruling, which is in effect for not more than 18 months. After the expiration of that time period, it must make a "permanent," or proper, spacing rule. The Commission is guided in its actions, officially at least, by the testimony of interested parties at the hearings and the advice of the State Geologist. The controversy has arisen over the demands of the mineral rights owners for the drilling of more wells. This demand has often been echoed, if not originally advanced, by the businessmen in areas where drilling rigs are becoming scarce and, consequently, so are the customers. An interviewee in Tioga

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claimed, to the writer, that $8,000 had been collected from the local businessmen and the small independent producers to fight the temporary 80 acre spacing in the Tioga and Beaver Lodge fields from being changed at the October, 1955, meeting of the Industrial Commission to a "permanent" 80 acre spacing rule. This group would certainly prefer a permanent 40 acre spacing rule. However, by the time the October meeting had come and gone it was apparent that the $8,000 had not been collected by the Tioga Field Mineral Association. That organization did not offer any testimony by technical witnesses at the hearing and the Industrial Commission thereupon issued a "permanent" 80 acre spacing order.

The persons in the Williston area who are most aroused over the situation are primarily concerned with having more wells in order, in their opinion, to have more income.[33] Spacing, of course, is not an end in itself. It is ostensibly a conservation measure designed to maintain the highest possible "maximum efficient rate of production," and, thereby, to drain the field as thoroughly as possible. The usual spacing order of the Commission reads—"one well to 80 acres in order to drain efficiently, all of the recoverable oil from the sand pool, assure orderly and uniform development and avoid the drilling of unnecessary wells, and prevent waste in a manner that will protect correlative rights.[34]

But the Commission has not been able to reconcile the differing conflicts of interest. The WCLOA has vociferously charged that the larger spacing ruling (primarily 80 acres)[35] is solely for the benefit of the major oil producers as the latter presently do not need the oil and want to avoid the expense of extra drillings. The findings of the State Geologist seem to concur generally with the major oil producers, but he—the State Geologist—believes that the allocation formula is equitable to all parties concerned as the amount of oil allocated to a given well is based on acreage and an increase in the size of the spacing unit increases, in proportion, the allowable quota for each well. His critics seem to have an unquenchable belief that an "independent" geologist should be hired to make a "scientific" ruling rather than an economic one. The WCLOA claims that other states have 10, 20, 40 acre spacing, which in some instances is true,[36] but comparisons are rather futile unless many geophysical factors are closely correlated. Factional politics also play an important role as the NPL has become an advocate, for the most part, of 40 acre spacing while the ROC adheres more closely to the findings of the geologists for the State and the oil producers.

The market demand features of the oil conservation law are also a source of conflict. The avowed purpose of a market demand provision is to prevent waste of a natural resource by permitting only enough oil to be produced as will "clear" the market. The Interstate Oil Compact Commission (IOCC) believes that this is not an involved decision to make—"it is not difficult to determine the current demand for crude

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oil and the increasing or decreasing trend in that demand."[37] Probably that is correct in North Dakota as the Standard Oil Purchasing Company at Mandan is, by all odds, the largest single purchaser of the oil; in fact, it is almost the sole purchaser.

A market demand law may well be necessary for proper conservation, an orderly market, and adequate risk capital,[38] but in the short run it means that an oil well may be able to produce its quota for the month in a few days.[39] Also, as long as the monthly quota remains lower than the capacity of the wells to produce, and the formula remains unchanged, the discussion over spacing seems rather academic. But that judgment is not concurred in by many landowners, businessmen, etc., in the Williston area. When the question of proper spacing for the Tioga and Beaver Lodge fields was discussed before, and decided by, the Industrial Commission in the fall of 1955 a considerable amount of political conflict was expected, but it failed to develop. The landowners were apparently divided as to the strategy which should be followed.

B. The State Geologist and State Geological Survey

The professor of geology at the University of North Dakota is also, ex-officio, the state geologist. As pertains to oil, he directs the activities of the State Geological Survey and "as supervisor, is charged with the enforcement of regulations and orders of the Industrial Commission governing North Dakota oil and gas resources."[40] In the administration of the duties and responsibilities of his office, the State Geologist, Dr. Wilson M. Laird, has organized the survey into three divisions—geology, administration, and conservation.[41] It is in the conservation activities of the last named division that Dr. Laird has encountered political difficulties. In his role as what might be termed the "principal advisor" to the Industrial Commission on geological matters, politics and science have become somewhat intertwined. Some individuals and organizations in the Williston Basin area have, and do, charge Dr. Laird with too close cooperation with the major oil producers and with failing, as one politician phrased it, "to assist the landowners of North Dakota whom he is supposed to represent." This matter of representation raises vital administrative questions. Who is Dr. Laird supposed to represent? From his point of view, his responsibilities are to administer the provisions of chapter 38-08 (Control of Gas and Oil Resources of the 1953 Supplement to the North Dakota Revised Code of 1943) in as scientific and objective a manner as is possible. But his findings, notably in the field of well-spacing and conservation, have led him to reach in many instances the same conclusions as the major oil producers. To those who consider their interests and conclusions to be contrary to those of the producers, Dr. Laird is not performing in a manner that is most beneficial for the citizens of the state. This is a serious and delicate matter and the author has only the competence to state the issues, not decide them. The concept of "state interest," like its larger counterpart—the "national interest"—has always been vague and confusing. The following questions are some of the important ones asked by influential persons in the Williston area and they indicate that a consensus of opinion has not been reached on several matters regarding oil production and conservation. Is Amerada, for example, not really concerned with conservation in the spacing issue but rather wants to keep North Dakota oil off the market and thereby protect her investments and production in foreign nations and other states? Does 80 acre space most efficiently and completely drain the oil fields where such an order is in effect, or is much oil left that will never be recovered and thereby jeopardize the interests of mineral owners, the state, and the nation? Is justice here not decided in the interests of the stronger, that is, stronger in terms of political pressures, public relations, financial resources, etc.?

C. Public Service Commission

The Public Service Commission in North Dakota has the responsibility for the regulation of public utilities in the state. Its powers of issuing licenses, permits, certificates of convenience and necessity, setting rates, and the like, make it a potent force in the economic life of North Dakota. The three members of the commission are elected for overlapping six year terms—assuming that it is not a special election. Because of the authority of the office and the patronage that is to be dispensed, control of this commission is avidly sought for by the political factions.

The commission has not played a particularly important role in oil politics in the state but recently there have been attempts to secure the Commission's approval for the construction of natural gas pipelines to certain cities and villages in North Dakota. The political and legal maneuvers that followed have somewhat shifted the conflicts centering around oil politics from the Industrial Commission to the Public Service Commission.

On November 27, 1953, the North Dakota Natural Gas Transmission Company (hereafter NDNGT) applied to the Commission for a certificate of convenience and necessity in order to build a pipeline from the Signal Plant at Tioga which would serve many of the major cities and towns in the northern section of the state east of Tioga and, also, in the Red River Valley area. This project was estimated in cost at $10,700,000. The Commission issued its findings of fact, conclusions, and order on May 24, 1954.[42] In essence, the plan was approved if the NDNGT would meet nine conditions. These need not be reiterated here but they imposed substantial demands upon NDNGT in such matters as underground storage facilities, standby wells, and some financial features which were not satisfactory with the Commission. NDNGT claimed that it could not comply with six of the 16 stipulations set forth by the Commission and applied for an extension of time, which was granted. Then on June 21, 1954, the Northern Natural Gas Company of Omaha proposed to the Commission the construction of a

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somewhat similar line at a cost of $18,280,700. These companies were apparently unable to meet the standards established by the Commission and all the while a presumably vital natural resource was being flared away. It was not until June 23, 1955, that the issue began to jell.[43] On that date, Montana-Dakota Utilities Company announced an agreement with Amerada on the use of the natural gas being flared at the signal gas plant. This was to be, if approved, a five million dollar pipeline extending east to Minot and west to Williston. Hearings before the Commission were held during parts of August. There seemed to be general approval of the proposal as far as it went but the eastern cities in the state were, in some instances, rather ardently opposed to the idea.

There were some interesting developments in this Montana-Dakota arrangement which indicate a "politics of business." W. S. Davidson Sr., President of the American State Bank in Williston and a definite power in state politics, is reported to be the largest stock-holder in Montana-Dakota Utilities Company. The former owners of the Minot Gas Company were the sponsors for the NDNGT. Also, Mr. Ralph F. Davis, a natural gas consultant, studied the availability of gas situation for the Montana-Dakota Utilities Company and claimed there was only enough gas to satisfy Williston, Minot, and the cities and towns in-between. Two days after this was announced by Montana-Dakota Utilities, the president of Amerada denied, by telegram, the lack of availability of gas.

In considering oil politics within the state, the most important development was the division that occurred within the Public Service Commission over the proposed pipelines of Montana-Dakota Utilities Company from Tioga to Williston and from Tioga to Minot. The former pipeline involves interstate commerce and is thereby a matter to be decided by the Federal Power Commission but the latter line is a matter of intrastate commerce. To summarize a lengthy and complicated dispute, the North Dakota Public Service Commission authorized, in late November, 1955, the Tioga-Minot pipeline, but subject to several restrictions regarding price and future commitments which Montana-Dakota Utilities and Amerada would not accept. To further confuse the situation, that pipeline was already being constructed; the Public Service Commission was trying to bring contempt proceedings against the public utility as no construction certificate had been issued; and many users of gas in the Minot area were protesting the ostensible shortage of gas. The day before Christmas, 1955, District Judge A. J. Gronna authorized Montana-Dakota Utilities Company to begin immediately the distribution of natural gas in Minot.

Whatever the final outcome, this matter was becoming more and more embroiled in North Dakota politics. One member of the Public Service Commission, an interim appointee of the Governor following the death of an elected member, was to run for election in 1956 to a full six year term on the Public Service Commission, and, on this aforementioned issue, his vote had been favorable to the position of Amerada and Montana-Dakota Utilities Company. In the 1956 election the issue of pipelines, rates, etc., was almost certain to be an influential campaign issue.[44]

D. The Tax Commission

The general provisions of the North Dakota Oil and Gas Gross Production Tax Law (chapter 57-51, North Dakota Revised Code, 1953 Supplement) were outlined in Section III, Part B, of this chapter. The State Tax Commissioner, an elected officer, is responsible for the administration of the act.[45] Table Number XVI provides statistical data concerning the collection and distribution of revenue received under the provisions of the law. In comparative terms the tax has not been much of an income producer as yet. That is, the state sales tax brought in $12,696,000 for the fiscal year 1954 compared to the $335,831 that oil tax accounted for in almost a two year period. Also the ¼ of 1% for administration has not been equal to the actual increase of administrative costs. For 1952-54, the State Geological Survey's budget was $310,000. Actually the Survey had no full-time employees prior to 1951, other than the State Geologist, and his activities were principally those of a teacher. By 1954 the staff had increased to 18 full-time and eight temporary employees.[46]

Although the administration of the oil tax law is basically a ministerial function there are a couple of features which need to be mentioned. It is clear from information received at the Tax Commissioner's office that there are instances where the discretionary powers of the Tax Commissioner in the interpretation of the law are of considerable importance.[47] In addition, the tax is somewhat novel in that it appears to be collected 100%. The reason for this apparently perfect collection is due to the source of collection, that is, the tax is collected at the refineries.

E. Other State Agencies

Two other state agencies that have been directly affected by oil discoveries in North Dakota are the Board of University and School Lands and the Bank of North Dakota. The Land Department had 723,000 acres under lease by the end of 1954. Income from leases and royalties since 1936 have totaled $4,332,448. The revenue from leases is apportioned to state schools and institutions while the income from royalties goes into a permanent fund for reinvestment. The Bank of North Dakota has collected $1,421,634 since it first leased mineral acreage in 1948. A million dollars of these receipts was used to cover a transfer payment to the motor vehicle fund directed by the state legislature in 1953.[48]

Both of the above organizations are ex-officio and politics, in the sense of a struggle for control, are moderately evident, but oil has, thus far, played a minor role.

Table XVI

NORTH DAKOTA OIL AND GAS GROSS PRODUCTION TAX COLLECTIONS AND ALLOCATIONS, 1954-1955, BY COUNTIES

		TAXES COLLECTED ALLOCATED AS FOLLOWS	TO STATE GENERAL FUND		
County	Total taxes collected from each county	To each county per 57-5115 (2)	¼% tax per 57-5115 (1)	Per 57-5115 (2)	Total to State General Fund
Billings	$ 18,450.92	$ 13,024.16	$ 1,085.35	$ 4,341.41	$ 5,426.76
Bottineau	6,073.87	4,287.44	357.29	1,429.14	1,786.42
Bowman	1,332.25	933.35	77.77	311.13	388.90
Burke	6,427.35	4,536.95	378.07	1,512.33	1,890.40
McKenzie	54,588.67	38,533.19	3,211.11	12,844.38	16,055.48
Mountrail	225,955.72	159,498.16	13,291.51	53,166.05	66,457.57
Stark	.63	.44	.04	.15	.19
Williams	750,956.99	449,651.15	44,173.95	257,130.89	243,826.06
TOTAL	$1,063,786.40	$670,464.84	$62,575.09	$330,735.48	$335,831.79

SOURCE: Office of the North Dakota Tax Commissioner, July, 1955.

V. *The Impact of Oil Upon City Government*

The discovery of oil in the Williston Basin area in April, 1951, enabled almost any student of government to forecast the need for expansion of municipal facilities and services in that area. This growth was certain to be accompanied by increasing financial problems. The unanswerable question seemed to be—how much? Hindsight is invariably simpler and more accurate than foresight but even now it is difficult, and perhaps too soon, to state whether the expansion of municipal activities in Williston, Ray, and Tioga was overly optimistic or unduly pessimistic. This section of the study is not intended to provide an economic analysis of the public finance problems that were, and are, involved. Rather it is to trace the growth of municipal services in the three cities and to relate and account for the serious conflicts that arose over municipal issues and institutions. Included within this discussion of municipal government are the operations of the independent school districts. Although separate units of government from the municipalities, the problems of the school districts are comparable in cause and scope to those of the cities.

Williston

(1) *Expansion of Services and Facilities and the Problem of Finances*

The United States Bureau of the Census declared Williston had a population in 1950 of 7,378. In a prior section this study indicated that by 1954 the population was approximately 9,717. This meant, in terms of municipal services, that the city needed more and improved streets, sewer and water main extensions, additional storm sewers, and improved waterworks, and more street lights—the new sewer system, alone, cost $350,000.[49] In addition to these rather obvious necessities, Williston had drawn the plans and secured city approval for a new

Armory building with probable construction in 1956, had funds to build a city garage, and had remodeled the city hall.[50] These capital improvements do not include new buildings and additions to the educational system, or other non-governmental civic enterprises. Some of this activity would certainly have occurred if oil had never been discovered but the tempo of change was much greater because of that event.

This building and improvement program meant that by May 31, 1955, the city owed $2,237,500 in general obligation and revenue bonds, refunding special assessment warrants, and special assessment warrants other than those of the refunding type.[51] (SEE TABLE XVII)

Table XVII

WILLISTON BONDED INDEBTEDNESS, MAY 31, 1955

	Amount of Issue	Funds on Hand
General obligation bonds	$ 153,000.00	$118,347.87
Revenue bonds	226,000.00	77,896.09
Refunding special assessment warrants	1,578,000.00	481,103.21
Other special assessment warrants	280,500.00	72,857.03
TOTAL	$2,237,500.00	$750,204.20

Even considering this substantial expansion of city facilities and consequent debt, Mr. H. L. Grimstvedt considered the city to be on a sound financial basis in May, 1955.[52] No events seem to have transpired since that time to cause a revision of opinion.

Property valuations—real and personal—have experienced a substantial steady increase; mill levies have remained relatively stable since 1952; and revenues have consequently moved upward. (SEE TABLE XVIII)

Table XVIII

WILLISTON PROPERTY MILL LEVIES, VALUATION AND EXPECTED TAX REVENUES, 1950-1955

Fiscal Year	Combined* Mill Levies	Taxable Valuation	Expected Revenue
1950	96.86	$ 4,837,541.00	$468,564.00
1951	98.93	5,185,454.00	512,996.00
1952	120.07	5,801,790.00	....
1953	125.08	6,845,675.00	....
1954	123.36	7,511,671.00	926,634.00
1955	....	13,423,649.00 (Est.)	....

*State, County, City, Park, School, Special

Table XIX shows how tax revenues, appropriations, and actual expenditures (including special projects) increased; how the demands for more services advanced the costs of strictly governmental services, and how they moved upward. The figures are self-explanatory and comparative percentage estimates would not be particularly meaningful.

The problems of the Williston school district are different in type, but not magnitude, from those of the city. Two elementary schools had

Table XIX

WILLISTON TAX REVENUES, APPROPRIATIONS AND EXPENDITURES, FISCAL YEARS 1950-1951 TO 1954-1955

Fiscal Year	Total Tax Revenues	Total Appropriations	Total Expenditures
50-51	$105,112.67	$163,828.00	$124,058.60
51-52	122,688.77	196,769.00	175,982.12
52-53	200,466.03	269,270.00	243,241.66
53-54	219,118.26	337,392.61	955,957.00*
54-55	252,695.96	426,815.19	....

*This includes $489,554.23 for the construction fund plus $126,320.00 for bonds.

to be built; another school was enlarged; a new parochial school was completed; a $300,000 high school gymnasium was constructed by early 1954 and two classrooms were used there during the 1954-55 school year. In July, 1952, there were $275,000 in outstanding school bonds; $325,000 more were added in 1952-53 and another $118,000 in 1953-54. By mid-year in 1955 the school district had a bonded indebtedness of $687,000 due to its construction and improvements program. (SEE TABLE XX)

Table XX

WILLISTON SCHOOL DISTRICT ENROLLMENTS AND TAX RATES, FISCAL YEARS 1950-1951 TO 1954-1955

Year	Number of Students	General Fund Mill Levy
1950-51	....	21.57
1951-52	1,664 + 76 parochial students	23.54
1952-53	1,972 + 93 parochial students	25.04
1953-54	2,239 + 100 parochial students	25.7
1954-55	2,315 + 194 parochial students	25.99

From the year 1952-52 school year to the 1954-55 school year, the school system in Williston—public and private—experienced a little over a 44% increase. This was a serious enough problem in itself but the migratory nature of oil-drilling meant that the students were coming and going at a rate which made student integration and administrative efficiency even more complicated.

By the summer of 1955 the population cycle was at a sort of plateau stage but there seemed to be what might be termed a careful optimism among the public leaders in Williston about the financial condition of the city and the schools. The indebtedness was substantial and the oil boom was definitely tapering off but they looked for a period of stability which would enable them to meet their financial responsibilities, and continue to move forward, but at a slower pace.

(2) *Internal Political Controversies and City Elections*

As far as the author could ascertain, there was little evidence of oil politics, of a direct type, in the organization or operation of city government in Williston. But there were two rather bitterly fought municipal elections in 1954—one special, the other regular—which were precipitated by the sudden and rapid growth of the city due to the oil boom. So, indirectly oil was certainly involved in local politics but it seems doubtful if the officers and employees of the different types of oil companies played a very significant role.

The expansion of municipal services and the concomitant increase in taxes and assessments were the seeds of some discontent.[53] A number of the persons in the outlying areas of the city were dissatisfied with the services and the cost of those services. The charge was also made that organized labor had no representation on the Commission. Others claimed the Police Department was operated in an inefficient, even crude, fashion; and one interviewee stated that the rate of arrest had been five times that of any other city in North Dakota.[54] All five of the Commissioners were, inadvertently it seems, living on the east side of the city and this created charges of favoritism.[55] One of the former members of the City Commission had been, while a commissioner, an employee of the engineering firm which was consulted about a new sewer project. But he did not vote when the contract was decided on by the City Commission. Nevertheless, some claimed this was a serious "conflict of interest." The City Attorney—Mr. Everett Palmer—contended that the Commission had discussed the ethics and legality of his action and was advised by the Attorney-General of North Dakota that his (Mr. Webster's) actions were legal. Also, an opposition leader stated, in a personal interview, that the former Commissioner's participation in the sewer contract matter was not made an election issue as there were no indications at all of illegal actions.

In any respect, 1801 citizens of Williston signed petitions favoring the aldermanic form of government and on February 23, 1954 the citizens voted on the issue—"Shall the city of Williston change from its organization under the Commission system of government and become a city under the Council form of government?" The leaders of the opposition apparently desired to have a Council-Manager form but disagreement within their own ranks dictated the expedient strategy of making a Mayor-Council form the first objective.

Pressure groups were formed on both sides. There were the "Women's Vote for the Commission Form of Government," and the "Committee for Progress"—all favoring the existing form. The opposition formed an organization called the "Civic Improvement League." Mr. Palmer, the City Attorney, came to be the ". . . principal spokesman for the Commission Form of Government."[56] Mr. Walter Burk switched sides, at least the reformers declared so, and delivered a radio address just prior to the election in favor of the Commission form. The League of Women Voters worked diligently, seemingly in an impartial manner, gathering and publishing facts about the issues. A prominent doctor was, according to a leader for the aldermanic form, to provide the campaign eve "punch blow" through a radio address favoring the change, but almost an hour before the broadcast he withdrew due to pressure from his associates and the bank he was connected with. Apparently the American State Bank "rode the fence" by contributing $50.00 to each side.

The reform group seemed to have a scarcity of funds for campaigning while the status quo group had considerable financial resources. By studying the advertising of the *Williston Herald* for five days (excluding Sunday as there is no edition that day) it was determined that the "for Commission" forces spent $1,031.40 on political advertising as compared to $28.80 for the "aldermanic" forces.[57] After the ballots were counted on February 23, 1954, it was announced that the vote was 1041 "yes" (in favor of aldermanic form)* to 1195 "no" votes.

However, the conflict was not yet resolved as the regular election was now due on the 13th of April. A group of interested and prominent citizens caucussed regarding a slate and decided not to support the existing President of the City Commission and two other Commissioners whose terms were to expire. As its slate, this group selected Dr. L. M. Carlson, a Williston dentist, to run for the office of president, and Mr. A. J. Thomas and Mr. T. S. Bosh for the other two openings on the Commission. "Tony" Bosh was considered to be a representative of the organized labor. A few days before the election, Mr. W .N. Dittsworth, then president of the Commission, withdrew from the race; Mr. Oscar N. Lee, a Commissioner, declared himself not to be a candidate; and Mr. Harris Anderson, the other Commissioner and who was then in charge of the police and fire departments, did run but was defeated. Table XXI shows the results of the election.

Table XXI

WILLISTON COMMISSION ELECTION RETURNS, BY CANDIDATES AND BY WARDS, FOR THE ELECTION OF APRIL 13, 1955

Pres. of B/C	1st	2nd	3rd	4th	5th	6th	7th	Totals
G. M. Carlson*	137	154	272	291	282	196	238	1570
Harry England	86	62	146	202	165	155	189	1005
W. N. Dittsworth	......	1	2	......	......	......	......	3
Comm.								
A. J. Thomas*	145	154	257	326	274	210	270	1636
Gust Stokke	64	59	103	170	108	105	105	714
Harris Anderson	48	50	144	96	179	91	139	747
C. A. Scott	46	38	49	91	93	70	108	495
T. S. Bosh*	124	126	230	294	206	198	189	1367

*Elected

Doctor Carlson died unexpectedly on June 27, 1955 so the Commission had to call a special election. The "interested and prominent" leaders again caucussed and the contest was between Mr. Burk, Mr. H. M. Zahl—a former newspaper publisher—and Mr. Russ Nelson. The election was held on September 19, 1955 and Burk received 1393 votes to 455 for Zahl and 399 for Nelson.

Tioga

(1) *Municipal Services and Finances*

Tioga calls itself the "Oil Capitol of North Dakota." The oil boom began practically in the city's front yard. This study has already noted what this discovery meant to Tioga in demographic, economic, and social terms. From a population in 1950 of 456 the city has leaped forward in a somewhat convulsive fashion to a point, by the summer of 1955, where a city official estimated the population to be 1200.[58]

There seems to have been, among the Tioga residents, a rather severe ambivalence about this oil boom. Some were ardently attracted to the powerful dynamism of an oil economy while others were much more concerned about the destruction of a way of life which they had found quite satisfactory. This conflict will be elaborated on to a greater degree in the next section but this situation delayed the construction and operation of new municipal facilities.[59]

But the rate of progress had still been considerable. Special improvement bonds of $743,000 value have been issued from 1951 to about mid-1955 for water, sewers, curbs and gutters, sidewalks, etc. Paving projects were not carried forth in a particularly speedy fashion but the change was persistent. A sizeable program was carried out in 1954 and in the late summer of 1955 bids were opened on paving, gutter, and storm sewer projects with the apparent low bids being $120,626 for 34 blocks of paving curb and gutter and $13,505 for storm sewers.[60] A new city hall, including a new jail, was constructed and, for the most part, in operation by January, 1954.

The general budget of the city went from $9,149.58 in 1952-53 to $39,946.61 in 1954-55. There was no park district in 1952-53 but by 1954-55 one had been organized and its budget for that year was $1,976.

Construction and extension of school buildings advanced at a comparable pace. School bonds for the amount of $158,000 were issued in 1954 and in May, 1955, the voters approved a $70,000 bond issue for new school buildings by a vote of 119-24. An election was to be held in the fall of 1955 as to whether or not the community desired a $400,000 bond issue for a new high school.

All this building meant, almost surely, more taxes. But the mill levy, although high, was on the decline after 1953 as Table XXII indicates. Assessed valuations for the city increased from about $405,000 in 1951 to $740,548 for 1955. The increase in valuation was even more substantial for the Tioga School District, which includes farming areas outside Tioga, but the, perhaps, more realistic valuations have permitted a decrease in mill levies. Table XXIII also indicates that the pupil population has increased over 300% since the discovery of oil.

Table XXII

TIOGA PROPERTY VALUATIONS AND TAX RATES, 1950-1955

Year	Property Valuations	Mill Levies
1950	$153,430.00	112.44
1951	155,551.00	109.21
1952	196,095.00	124.11
1953	614,864.00	113.79
1954	740,548.00	110.75
1955	....	100.00 (Est.)

Table XXIII

TIOGA SCHOOL DISTRICT ENROLLMENTS, PROPERTY VALUATIONS AND TAX RATES, 1950-1954

Year	School Population	Property Valuation	General Fund Mill Levy
1950	......	$ 412,466.00	54
1951	187	475,631.00	51
1952	350	1,102,418.00	51
1953	515	2,625,221.00	32
1954	601	....	30.47

(2) *Internal Controversies and Elections*

The conflicts have probably been more considerable in Tioga than in Ray but of a somewhat different variety. Tioga had been a village until 1953 but, by an almost unanimous popular referendum held that year, it incorporated and became a municipality with a commission form of government. The city limits have not been extended to include the Signal gas plant because the property that is used by that plant belongs to the Great Northern Railroad Company and the strategy seems to be to build city improvements first and, perhaps later, annex more property.

An early, and apparently rather bitter, conflict concerned what was called the "wets and drys" issue. The "wets" wanted city water and sewage and the "drys" favored the status quo. Even after referenda were conducted and bond issues thereby authorized, a series of law suits were begun which sought writs of injunctions against these new improvements. There was a substantial amount of community animosity and neighbors were, even in the summer of 1954, sometimes quite irate toward each other over this issue, although the water system was installed in 1952.

Newcomers to the community were gradually being elected to the Tioga City Commission and the school board. In the summer of 1955 there were two on each of the five-member boards. The elections have been relatively peaceful although a Catholic-Protestant conflict did arise in the 1955 election to the school board. Thirteen teachers voluntarily resigned from the school system and, because a Catholic was chairman of the school board, there were charges made that the vacancies would be filled from teachers of that faith. In the election, two Protestant candidates entered the race, one later withdrew, and the

Protestant candidate received 25 more votes than the incumbent chairman. However, both were elected as there were two vacancies. Apparently many of the citizens of Tioga, including the editor of the *Tioga Tribune* who did some editorializing on the matter, looked upon this ruckus as sort of an unfortunate affair and it now seems to have substantially subsided.

The time of troubles is certainly not over for the governmental organizations in Tioga but the peak period seems to have passed.[61] There has been a water shortage but the city installed a new pump in the south well to alleviate that problem. An influx of trailers had created a difficult sort of problem for the City Commission but an ordinance regulating trailer parking has mitigated that situation. There was a noticeable reluctance to provide the city with natural gas after the Signal plant was in operation so in July, 1954, the City Commission let it be known that it was considering the construction of a municipal gas plant. During the following month the Montana-Dakota Utilities Company announced that natural gas service would be available in Tioga by October 15, 1954. This statement became a reality and, by the summer of 1955, 239 permits had been issued for the use of natural gas.

Ray

(1) *Municipal Services and Finances*

The city of Ray is several miles west of the original oil discovery areas but the boom soon pervaded the life of the whole community. The natural topography of the city favored additional development and there was available already a municipal water and sewage system to attract the oilmen and their families.

Accurate statistical information was more difficult to secure in Ray but the general impressions were that the financial situation was less satisfactory than in Tioga. Leaders in the community stated, in personal interviews, that the bonded indebtedness for schools in Ray was up to the legal limit; that the mill levy was up to 141 (71-72 mills for school district,[62] 26 for City, and the rest State/County and minor levies); and that the City budget for 1954-55 was $22,000-$23,000. But the city of Ray had no bonded indebtedness in 1954, although it did incur one in 1955 of $13,800 in order to install new storm sewers. One of the residents provided the author with a statement of the property taxes for his own home and these figures indicated a gradual increase in property taxes from $82.09 in 1951 to $102.24 in 1955.

The activities of the Farmers Union Credit Union in Ray indicated the economic trend to some extent. In 1955, it had assets of $488,950 and 771 members while in 1952 the assets were $390,000 and the membership was 625. However, if these statistics indicate pessimism as to the future it should be quickly stated that such did not seem to be the prevalent attitude in the summer of 1955, although there was

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a much more cautious optimism than a year previously. Table XXIV points out the increases in property valuations and mill levies.

Table XXIV

RAY PROPERTY VALUATIONS AND TAX RATES, 1950-1954

Year	Property Valuation	Total Mill Levy
1950	$221,374.00	113.76
1951	234,786.00	130.45
1952	246,336.00	140.83
1953	333,693.00	140.69
1954	381,134.00	141.69

The schools had to meet a new and pressing situation. Three bond issues totalling about $225,000 had to be floated. One school burned; another started but could not be completed until another bond issue had been sold. However, again, the community leaders believed that the burden could be handled. The following table (TABLE XXV) outlines the general picture of school population increases and the financial situation.

Table XXV

RAY SCHOOL DISTRICT ENROLLMENTS, PROPERTY VALUATIONS AND TAX RATES, 1950-1954

Year	School Population	Property Valuation	General Fund Mill Levy
1950	......	$505,673.00	45.00 mills
1951	246	528,920.00	42.50 mills
1952	393	620,274.00	40.65 mills
1953	413	679,808.00	40.00 mills
1954	413	....	40.00 mills

There was, in 1955, criticism of high taxes. One community leader estimated that taxes had been doubled since the coming of oil; another thought the increase was 65-70%. This writer, at least, gained the general impression that more skepticism toward the future was prevalent in Ray than in either Williston or Tioga.

(2) *Internal Controversies and Elections*

The political schisms in Ray rather compared with those already noted in Tioga. The issue was largely between the "Old Guard" and the "Progressives," or in other words, the "status quo" group versus the "reformers." Prior to the April, 1954, election there was considerable criticism of the existing city commission. The then President of the Commission had occupied that position for 12 years but decided not to run for reelection, perhaps because of considerable criticism of his actions by some of the residents. A slate of "Progressives," including a member of the Commission to run for the office of President, was put forward in the April election and all were voted into office. It seemed to be a rather prevalent opinion that the new Commission came about primarily because a majority of the citizens thought that community development was proceding too slowly. But in the referenda on community projects the storm sewer proposal was defeated 56-165 while the curbs and gutters proposal was approved by 142-81. The new President of the City Commission, Mr. Arnold Anderson, seemed confident that the schisms were not overly serious; rather they were largely those, he believed, of a small town nature in which everyone knows everyone else's business and resulting frictions are the consequence.

Public Attitudes on Local Government Services and Educational Facilities

The Questionnaire Survey team spent most of the summer of 1954 in the Williston area. The different methodological aspects of this survey have been discussed in Appendix I. Two of the questions that were directed to the respondents provided some worthwhile data as to the opinions of the citizenry of Williston, Tioga, Ray, and the Impact Area relative to the condition of local government services, including education.

In regards to local governmental services, the question was—"Since the beginning of the oil boom have local government services improved?" This question was varied slightly in Tioga and Ray in order to interject the possibility of a decline in the quality of the services but the changing of the question resulted in approximately the same type of answers so no distinction is included in Table XXVI following.

Table XXVI

TYPES OF ANSWERS, BY WILLISTON BASIN LOCALITY RESIDENCE, TO THE QUESTION: "SINCE THE BEGINNING OF THE OIL BOOM HAVE LOCAL GOVERNMENT SERVICES IMPROVED?"[1]

Types of	Williston						Impact	
Answers	Old[2]	New	Either	Total	Tioga	Ray	Areas	Totals
Improved	209	45	4	258	27	36	13	334
No Change or Declined	84	26	156	266	9	36	81	392
Both	4	1	......	5	1	....	....	6
Don't Know	53	49	2	104	10	27	4	145
TOTALS	350	121	162	633	47	99	98	877

[1] This question was re-worded in Tioga and Ray but obtained the same kinds of answers.

[2] The word "old" means that the interviewees lived in that particular city, or area, prior to 1951.

The results of the survey seemed to point to no particular change in attitudes about local governmental services because of the oil boom. But a substantial number—334 out of 877—believed that the services had improved and that was rather remarkable in itself considering the large expansion in population over a brief period of time. The status quo category (a minority indicated a decline in the quality of services) was preponderant but such an attitude might well be considered a commendation during such a period of development.

The question concerning educational institutions was phrased as follows—"Has the rapid increase in population affected educational facilities in your area? If "yes"—How?" For Tioga, the question was re-stated—"How have educational facilities been affected?" The alteration, in the case of Tioga, was made because the wording of the original question was somewhat leading. That is, stressing the fact that there had been a rapid increase in population rather led the respondent to believe that the educational institutions might have been drastically affected. Table XXVII outlines the results on these particular questions.

Table XXVII

TYPES OF ANSWERS, BY WILLISTON BASIN LOCALITY RESIDENCE, TO QUESTIONS CONCERNING THE PRESENCE AND NATURE OF CHANGES IN EDUCATIONAL FACILITIES

	Williston						
Types of answers	Old	New	Either	Total	Ray	Impact Areas	Totals
No—no data	......	1	..	1	3	39	43
No—data not available	7	8	..	15	......	....	15
Yes, better—improved teaching	1	1	..	2	3	1	6
Yes, better—improved facilities	59	20	..	79	......	12	91
Yes, better—improved administration	......	......	..	......	23	....	23
Yes, better—data not available	2	......	..	2	2	....	4
Yes, worse—poorer teaching	3	3	..	6	2	2	10
Yes, worse—poorer facilities	146	38	4	188	50	32	270
Yes, worse—data not available	1	1	..	2	......	2	4
Both—some facilities better, others worse	43	9	..	52	2	....	54
Both—some teaching is better—others worse	......	2	..	2	......	....	2
Both—no data	1	......	..	1	......	1	2
Indefinite—teaching may be worse	1	......	..	1	......	....	1
Indefinite—facilities may be worse	13	5	..	18	......	3	21
Indefinite—data not available	27	16	..	43	......	....	43
Indefinite—no data	4	1	..	5	18	6	29
No opinion—data not available	17	30	..	47	......	....	47
TOTALS	325	135	4	464	103	98	665

It points to a dislike of the way that educational facilities have fared since oil discovery. Almost 43% believed that the schools were in worse condition and nearly all of the criticism was directed at what the respondents considered to be poorer facilities. But a rather sizeable proportion—nearly 18%—were of the opinion that education institutions had improved in various ways. It would seem that, in the long run, oil discovery would improve the quality of educational institutions, at least in terms of plant and equipment, due to the extensive building programs that have occurred. The key issue will probably be one of finances. That is, can the payments on the bond issues be met without lowering the quality of educational services?

VI. *The Impact of Oil Upon the Government of Williams County*

A new courthouse building was slowly coming to be an absolute necessity in Williams county but the discovery of oil and the aura of wealth and power that followed hurried along its construction. Somehow this courthouse seems to symbolize the coming of a different era for this county. Probably the economic revolution will not be as rapid or thorough as was originally contemplated, at least by a few, but it has been substantial.

A. Increased Governmental Activities

One needs to do very little research in order to arrive at an accurate generalization about Williams County government—oil discovery meant that all county governmental offices had more work to do and needed a larger budget. Presumably even the coroner was more active than before but this section will only deal with those offices which felt the impact quite severely.

The administrative personnel of the County Public Welfare Board seemed convinced that "oil" added greatly to their problems. It was one interviewee's opinion that, in terms of public welfare costs, oil had been harmful. But the situation was apparently about what they had expected. The influx of oil workers, particularly from 1951 to 1954, meant more transients, more marital desertions, more stranded persons, and the like. However, it does not appear from statistics that the burden was as much as one might conjecture. For example, the "General Assistance"[63] load was 40 families in 1953-54 as compared to 80 families in 1954-55. But the increase was probably due to lower farm income that year as much as a decline in oil development in the area. The oil workers were mostly from warmer climates and had lived in a somewhat different culture. Child welfare work became more of a problem due to a considerable increase in child neglect, etc. Also, the "white collar" oilmen and their families were "accepted" but the laborers were much more isolated. Perhaps it was just a misleading stereotype but several of the interviewees made a definite distinction between the oil executives, etc., who were "educated and cultured," and the oil workers, who were often characterized as "bums," "drunks," etc.[64] This "black and white" distinction appears to be vastly overdrawn; in fact, there were a few interviewees who believed that the moral standards of the oil workers were superior to those of the "native" population, and these persons were not "outsiders." But this afore-mentioned dichotomy was rather a commonplace finding. Where increased public welfare needs did arise—and that occurred primarily in Williston, Tioga, and Ray—many voluntary non-governmental associations were very helpful in assisting the needy and, thereby, in aiding the public welfare officials. Church organizations were, in some instances, quite effective in helping the oil workers; business organizations also contributed to the mitigation of their problems. The Public Welfare office constantly needed more staff personnel but it was most difficult to secure them, and that situation still existed in the summer of 1955.

Since 1947, Williams County has been a part of the Upper Missouri District Health Unit, as have the counties of Divide, McKenzie, and Mountrail. The headquarters for the District are in Williston. Oil has meant a noticeable increase in the activities of this public health organization but by the summer of 1955 the peak period seemed to have passed. Along with a District health officer, the authorized staff consists of a sanitary engineer, two sanitarians, five public health nurses, and a clerk, but it has been difficult to recruit a full staff, particularly so in regards to the public health nurses. The District is financed by a ¾ mill levy and the income from the mill levy has increased due to the rise in property valuations. There was a considerable amount of work to be done in Tioga and Ray as the District had to approve plans for water and sewer systems, inspect plumbing, approve semi-private water supplies and sewage disposal systems for trailer camps, and certify restaurants and taverns as to health standards. Also, there was a substantial increase in the medical examinations (vision, hearing, general physical condition and immunizations) that had to be given in the rural and city schools. All of these functions would, of course, have been carried out even without the discovery of oil and the rapid influx of new workers, facilities, etc., but the burden and responsibilities were much greater because of this expansion.

Oil created a new type of responsibility for the County Agent. He advises, rather than dictates to, the farmer, but now his advice concerned such matters as mineral rights, royalty rights, compensation claims for damage to land and crops, and other such situations that arise between lessor and lessee in an oil development area.[65] Oil was a unique and often exciting experience for the farmer. On occasion, his enthusiasm, coupled with a lack of legal knowledge, led to consequences that were not in his best interests. In order to assist the farmer to arrive at a more judicious decision the County Agent decided to provide him with some general but accurate instruction in the science and economics of oil development. To meet this situation, Mr. Don Hotchkiss, the County Agent, conducted 14-15 meetings throughout Williams County to familiarize farmers with mineral rights. The meetings were well-received and well-attended. Apparently the County Agent was so successful in this educational venture that a group of oilmen offered him a lucrative job—contacting farmers about selling, leasing, etc., their mineral rights. He declined. According to the County Agent, the farmer in the oil area has, in general, not altered his attitudes or his techniques to any appreciable degree because of oil. There was an original burst of enthusiasm and a period of great expectations but as drillings slowed down and the oil fields proved to be restricted to rather limited areas the farmer began to develop a considerably more cautious "wait-and-see" attitude.

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The County Superintendent of Schools has been an important participant in a rapidly moving educational system. Her responsibilities have not increased proportionately due to the fact that the main changes occurred in city schools—Williston, Tioga, and Ray—which are largely beyond her jurisdiction, but the ministerial duties of her office have increased. There was a rapid upsurge in school population in the Pleasant Valley School District near Tioga, as indicated by Table XXVIII, but this situation was apparently well under control by 1955.

Table XXVIII

PLEASANT VALLEY SCHOOL DISTRICT (RURAL TIOGA) ENROLLMENTS, PROPERTY VALUATIONS AND TAX RATES, FISCAL YEARS 1950-1951 TO 1954-1955

Year	Students	Property Valuation	General Fund Mill Levy
1950-51	....	$138,804.00	33
1951-52	13	160,200.00	33
1952-53	75	453,902.00	22
1953-54	44	561,048.00	20.03
1954-55	47	....	....

In general, the Superintendent of Schools considered the children of the oil workers to be reasonably well-behaved and usually rather apt pupils but the migratory sort of life that many of them had to lead meant some retardation. These pupils usually assimilated well and the "ins-outs" relationships were not considered to be at all a serious problem.

Oil has not caused any vast changes in School District No. 8 which is, in itself, larger than the State of Rhode Island.[66] For the year 1954-55 the gross oil production tax had brought in over $6,000 in revenue for the school district but increased tuition costs in the Williston school—where some children outside of the Williston area must attend, and that includes a trailer camp west of Williston which is in the District No. 8 area—have been an additional burden on the District's budget.

The District Court of the Fifth Judicial District in North Dakota, which has original jurisdiction over nearly all important civil and criminal cases, had a somewhat busier calender due to the discovery of oil, but, as Table XXIX indicates, perhaps not as much so as one might conjecture.

Lastly, the County Highway Department was faced with constructing and reconstructing many county roads, or at least assisting in the process. This interviewer heard quite variegated opinions about the conditions of secondary roads before and after the discovery of oil. Comments such as "we never had any roads to begin with," to denunciations of the destruction of these roads by heavy oil drilling equipment, to opinions that the roads were much better in 1955 than in 1950, were all garnered. Just in terms of finances it would seem that the oil production tax was not sufficient to meet the additional expenses incurred although there are many factors to be considered. How-

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Table XXIX

FIFTH JUDICIAL DISTRICT COURT CRIMINAL AND CIVIL CASES, 1951-1955

Time Period	Number of Criminal Cases[1]	Time Period	Number of Civil Cases[2]
Jan.-Dec., 1951	46	Aug. 19-Dec. 31, 1952	122
Jan.-Dec., 1952	50	Jan. 9-Dec. 31, 1953	236
Jan.-Dec., 1953	66	Jan. 4-Dec. 31, 1954	204
Jan.-Dec., 1954	54	Jan. 5-June 15, 1955	115
Jan.-June, 1955	29		

[1] Most of these persons were charged with "driving under the influence of intoxicating liquor."

[2] Most of the civil cases were "actions to quiet title" although this type of case is becoming less frequent, for example:

Month	Total Cases	Actions to Quiet Title
October, 1952	34	17
October, 1953	23	6
October, 1954	27	5

ever, in about a two year period (July 1, 1953—June 2, 1955), the amount of the fund allocated to counties which had been directed to roads totalled $179,860.40 while the highway appropriations increased from $307,610 in fiscal year 1952 to $490,860 in fiscal 1953. Still, this increase might have been primarily due to an improved revenue situation.

B. Financing Government

From what has been discussed thus far it becomes obvious that Williams County had to have more income in order to meet the increased governmental costs (SEE TABLE XXX). The tables are so self-explanatory that few comments need be made in the way of description or analysis.

Table XXX

WILLIAMS COUNTY PROPERTY VALUATIONS, BY TYPE, AND TAX RATES, 1950-1954

Year	Real Estate Valuations	Personal Property Valuations	Public Utility Valuations	Total Property Valuations	County Mill Levy
1950	$ 9,406,404	$2,781,318	$3,365,187	$15,552,909	31.75
1951	9,709,184	3,168,281	3,448,721	16,336,186	34.16
1952	10,005,710	3,974,908	3,485,301	17,465,919	35.84
1953	11,249,553	4,972,631	3,718,131	19,940,315	36.33
1954	13,040,654	5,301,063	4,151,832	22,572,583	31.63

Tax collections stayed remarkably high—100% in some areas—although the percentage seemed to decrease as the anticipation of oil discovery lessened. For example, in the city of Tioga the collections were 99.84% in 1951, 98.09% in 1952, and 87.14% in 1953.

Table XXXI shows the funds that were actually appropriated for administering the various activities of government in Williams County. When one considers that in a four year period appropriations had in-

Table XXXI

WILLIAMS COUNTY APPROPRIATIONS, BY TYPE OF PURPOSE, FISCAL YEARS 1951-1952 TO 1954-1955

Fiscal Year	General Government	Protection to Persons & Property	Health & Sanitation	Agriculture & Economic Development	Relief Charities	Education	Recreation	Highway	TOTAL
51-52	$116,700	$ 38,140	$ 7,778	$ 6,408	$ 97,890	$ 9,596	$......	$ 307,610	$ 584,122
52-53	121,780	56,485	8,139	6,408	94,323	9,770	400	448,400	745,705
53-54	134,186	57,473	13,049	6,702	93,839	10,414	....	485,075	800,038
54-55	161,728	61,353	14,979	10,324	101,245	11,134	....	490,960	851,722
Totals by Purpose	$534,394	$213,451	$43,944	$29,842	$387,297	$40,914	$400	$1,732,045	$2,981,587

creased somewhat over 45% the impact of oil discovery becomes more apparent.

This study has practically excluded the impact of oil in other counties in the Williston Basin area, notably Mountrail and McKenzie counties, but a cursory investigation indicated that the effects were less in those counties than in Williams. It is impossible to predict at present whether this will continue to be true but the recent discoveries of oil in Bottineau, Burke, and Renville counties strongly indicate that oil development in North Dakota is still in a period of flux.

C. Federal Agencies and Oil Development

It was deemed to be somewhat outside the scope of, or at best peripheral to, this study to relate the changes made by oil discovery to the operation of Federal agencies. However, a general inquiry brought to the surface enough facts to state that the functioning of the Farmers Home Administration, the Agricultural Stabilization and Conservation Committee (formerly the PMA), and the Soil Conservation Service was influenced by the discovery of oil. For example, the Williams County official for the Farmers Home Administration—Mr. John Freeman—estimated that at least four farmers received sufficient income from the sale of mineral rights to pay off all their FHA loans; another ten farmers had made, and were making, enough from their oil leases to pay off their farm ownership loans. It is true that the emergency, subsistence, and production loans increased from approximately $150,000 in 1953-54 to $163,508 in 1954-55, but this was due primarily to the hail and drought that had struck in the northern and southwestern parts of Williams County. How much, if any, oil had changed the attitudes of farmers toward soil conservation who are in the Little Muddy Soil Conservation District and the Eastern Williams Soil Conservation District, a soil scientist assigned to the Soil Conservation Service office would not, when interviewed, predict, but the logic of the situation was that more income would mean more conservation. An indication that farmers in the oil county had not radically revised their attitudes toward national farm policy was discovered in a perusal of the wheat referendum that was held on June 24, 1955, in the Tioga area. Those in favor of marketing quotas and acreage allotments totalled 153; only two farmers were opposed. The total vote for Williams County was 2,150 for and 62 against.[67]

VII. *Oil and the Political Power Structure in the Williston Basin Area*

A. The Locus of Political Power and the Decision-Making Process

The general hypothesis of this section is that the political power structure in the Williston Basin area remains essentially the same today as it was prior to the discovery of oil.[68] The one exception pertains to oil policy where the interests of the oilmen have added what might be termed a new dimension to the power structure.

The specific hypothesis of this section is—businessmen[69] and some professional men, primarily lawyers, are the community leaders and largely determine oil policy, and attitudes toward oil policy, in the communities of Williston, Tioga, and Ray.[70] Such a supposition does not mean that these individuals and their associations are always in agreement—there are conflicts—but the ideas that become formalized in laws and administrative decisions are mainly formulated and espoused by these individuals and groups.[71] This hypothesis does not adequately account for the power of the Farmers Union in rural areas but, as has already been noted, the deviation here in terms of oil policy is not as drastic as one might expect.

In order to test this tentative theory regarding the locus of power and to determine those who are the decision-makers, the researcher must offer adequate and effective empirical data. The sources of that type of factual information, in this instance, are primarily two—the questionnaire type of survey which has already been referred to many times in this chapter, and personal interviews with those who were considered, by others as well as the writer, to be leaders in various phases of community political activities. The following brief analysis of certain power situations are presented as a substantiation of the above-stated hypotheses.

(1) *Oil and Gas Legislation*

The principal oil and gas legislation for North Dakota has already been discussed earlier in this chapter. What is to be considered at this juncture is policy formation and public attitudes concerning the gross oil production tax. When one considers the pressures that were exerted upon the 1953 legislature, and especially upon Senator Solberg, the logical assumption would be that a low tax had the support of the constituents, in the Williston Basin area. But, as Mr. Justice Holmes once wrote: "Logic is not the life of the law, but experience," and such seems to be the situation in this instance. Parenthetically, it is not contended here that the results of the survey are by any means infallible, rather the contention is that the data is generally indicative as to whether or not the interviewee understands the issue. The following question was asked those who were interviewed in Williston, Ray, and the rural impact areas: Question 10: Do you know what the main features of the state oil tax are? If "YES"—a. Do you believe that the gross production tax is too high or too low? Why? b. Are you in favor of the 27½% depletion allowance? If "YES" or "NO"—why?

The results of the survey are disclosed by Table XXXII and it should be noted that those questionnaires on which no data on this question was contained have been excluded from the tabulation.

In analyzing these results one has to exclude the results received in Ray as the great preponderance of interviewees did not participate in answering this question, but for Williston, in particular, the results are noteworthy. Out of a grand total of 475 (143+332) respondents to this question 431 did not have any factual understanding of the

Table XXXII

TYPES OF ANSWERS, BY WILLISTON BASIN LOCALITY RESIDENCE (AND LENGTH OF RESIDENCE IN WILLISTON), TO THE QUESTIONS: "DO YOU KNOW WHAT THE MAIN FEATURES OF THE STATE OIL TAX ARE? IF 'YES': a. DO YOU BELIEVE THAT THE GROSS PRODUCTION TAX IS TOO HIGH OR TOO LOW? WHY? b. ARE YOU IN FAVOR OF THE 27½% DEPLETION ALLOWANCE? IF 'YES' OR 'NO': WHY?

	Williston			
Answers to the Question	New Residents	Old Residents[1]	Ray	Impact Areas (Old)
No—Did not understand the issue	130	301	7	16
Yes, O.K.—no reason	3	6		2
Yes, O.K.—no reason				
Yes, O.K.—no reason	1	4		
No—not necessary				
Undecided—no reason		3		1
Undecided—no reason				
Others	9	18	6	10
Totals	143	332	13	29

[1] Where the respondent did not signify whether he was "new" or "old" he has been included as "old." There were few such instances.

issue. In other words, only slightly over 10% had any comprehension of the oil production tax at all and even they were undecided or showed no particular grasp of the issue. Perhaps a closer questioning of the interviewees might have produced more enlightened answers but there is little reason to believe so. However, of those community political leaders who were interviewed, all could discuss this oil tax issue although there were a few instances where they were not certain as to how the refunds to the county were allocated. A rather certain conclusion seems to be that oil policy is understood by a very few, that is, those who—to use a phrase of John Dewey's—have a "perception of the consequences."[72] In fact, it seems to be confined to the community leaders—businessmen, lawyers, politicians, newspapermen, officials of oil concerns, and the like. With them, the issue was created, articulated, and meaningful.

The future of this oil tax issue will be interesting to observe. In the summer of 1955, opinion on this matter among the leaders was in a process of re-thinking. Roughly half of those interviewed still believed that the present tax was proper; none desired a lower tax—or at least would not openly advocate such; the other half was moving toward higher tax but almost invariably no more than "1-2% more." Whether this gradually changing opinion will create a "higher oil tax atmosphere" in the 1957 legislative session remained to be seen.

(2) *The Question of Factionalism*

In *The Federalist* (No. 10), James Madison stated that "liberty is to faction what air is to fire, an aliment without which it instantly expires." Then he proceeds to explain that although factions do, even must, exist in a republic it is still mandatory to control their effects.

The results of the survey seem to indicate that factions are actually considered to be non-existent by a very large majority of the respondents in Williston, although this is much less true in Tioga. Further, the discussion in the earlier sections of this chapter point to the active and effective operations of factions in different phases of policy-making. Here, again, the evidence points to apathy and indifference to public affairs on the part of the many. The results of the survey on this particular issue are presented in Table XXXIII.

Table XXXIII

TYPES OF ANSWERS, BY WILLISTON AND TIOGA RESIDENCE AND LENGTH OF RESIDENCE, TO THE QUESTION AS TO WHETHER OR NOT THERE WERE LOCAL FACTIONS AND WHO CONSTITUTED THE FACTIONS

	Williston		Tioga	
Types of Answers	Old	New	Old	New
No	205	63	27	40
No opinion	108	57	8	10
Labor	1			3
Farm Organizations	1			
Religious Groups	7	1		1
Business Groups	1			3
Banking Groups	3	4		
Other (including combinations)	15	8	9	12
Total	341	133	44	69
GRAND TOTAL	474		113	

Less than 9.5% of those interviewed in Williston stated they believed there were factions but almost 33% acknowledged their existence in Tioga. This might indicate a more satisfied and static community atmosphere in Williston but incidents that have already been recounted in this chapter tend to a contrary opinion. One seems rather directed to the conclusion that the "interests" Madison refers to are definitely minorities and that the majority did not realize that the minorities were organized into factions and that these factions formulate public policies. His comment that ". . . measures are too often decided, not according to the rules of justice and the rights of the minor party, but by the superior force of an interested and overbearing majority party" should perhaps be revised by interchanging the words "minor" and "majority" and then changing "minor" to read "minority."

The results of this survey are not offered, by any means, as conclusive evidence but are rather just another example of a growing body of data concerning this political reality.[73]

(3) *The Issue of Leadership*

On the issue of oil policy, the leadership has come predominantly from the business community in the Williston Basin area, primarily bankers, the Williston Chamber of Commerce, and lawyers.[74] Again, the "public" has been very limited but it is growing and the story of

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the techniques used in forming the public into a mold which is favorable to the oil companies needs to be related.

In 1946, all the oil companies in the United States which were members of the American Petroleum Institute formed, within the API, an Oil Industry Information Committee. After considerable research and assistance from some educators, there was begun a "Petroleum Industry School Program" that was designed to provide a reciprocal exchange of information and understanding between the oil industry and the schools.[75] In the words of the OIIC, the objectives of its "school program" are:[76]

> 1. To provide information about the oil industry to the schools in various acceptable ways, with the expectation that teachers, students and parents may thereby better understand the industry's contribution to the well-being, security and improved standards of living of the American people.
>
> 2. To inform oil men about the schools and acquaint them with the people and problems of education, with the expectation that they will be stimulated to take greater personal interest in education and more effectively lend their support and cooperation to the schools at local, state, and national levels.

The program has three basic and important characteristics:

> FIRST: It has been developed from the outset in accordance with principles recommended by educators as a result of a study concerning business-sponsored educational materials. It has been designed to furnish teachers and students with accurate and objective information about the oil industry. It has been prepared to fit appropriately into regular courses of study.
>
> SECOND: It is now being conducted on a basis planned to provide experience and guidance for sound expansion of the program during succeeding years. The ultimate goal is a nation-wide school program.
>
> THIRD: Responsibility for contact with the schools, for distribution of the materials, and for providing the program services is *placed with the local oil men.*

Apparently the American Petroleum Institute had a survey conducted of public attitudes toward the oil industry and discovered that many people knew about the Teapot Dome, the exploits of John D Rockefeller Sr., and the like, but little about the vast dynamic developments in the oil industry.

Mr. Gregg Kildow, II, a sales officer of the Northern Mud Company in Williston, spearheaded the activities of the Oil Industry Information Committee in the North Dakota oil areas. The Committee had (1955), approximately 80 members and each membership was $5.00, although that appears to be only a minimum charge. Members of this local OIIC organization have visited many of the high schools in Williams, McKenzie, Mountrail, Divide, Burke, Bottineau, and McHenry counties, talked to school assemblies, and informed the school superintendents and teachers of the study program which was offered, free of charge, for their use.[77] The printed materials have been prepared for junior and senior high school students, are attractively presented, and are comprehensive in coverage. The many phases of the oil industry from chemistry to the social sciences are discussed in individual booklets; film strips are included; movies on the oil industry may be borrowed at no cost; and teacher's aids and a handbook are a part of the total package.

During the 1954-55 school year the Committee became particularly active. First, a panel of experts on all phases of the oil industry was organized. Then, during the school year, the panel visited high schools—10 in 1954—and at scheduled assemblies they answered any questions regarding oil production, etc., which the students were interested in asking.[78] Second, an essay contest was held with the theme being, "What Has Oil Done for Me?" Every school that participated received a $25 Savings Bond and an engraved plaque for the two winners—one junior and one senior high school student. Six hundred students participated, and an area prize of a $50 bond for the best essay was awarded. A banquet was then held in Williston for the winners and their high school teachers. Third, a radio program—30 minutes every Monday night—called the "Oil Forum" was initiated. It was a mixed panel composed of oil experts and local citizens. The local citizens would pose questions concerning the various phases of the oil industry and radio listeners would call in questions for the panel of experts to answer. The local OIIC group paid for the radio time. From all appearances the activities of this Committee have been well received. It cannot be foreseen at this time whether this Committee will take the lead when, and if, the issue of compulsory unitization of oil fields arises,[79] but it appears that the issue will become important in the not too distant future. However, it does seem worth noting that the North Dakota OIIC was considered the best in the nation in 1954 by the American Petroleum Institute.

The Williston Chamber of Commerce has also been very active in taking the lead in advancing the interests of the oil industry and thereby, in the opinion of the Chamber, the interests of the region and the State. Since 1953, one Director on the 15 member board of the Chamber of Commerce has been an oilman. The Chamber has lobbied for a low oil production tax, a 27½% depletion allowance, and a market demand law; but it opposed the anti-flaring bill. The activities of the Upper Missouri Development Association—this organization has been almost solely concerned with attempting to defeat an 1850 foot level for the Garrison dam—have been largely financed by the Chamber and this issue is presumed to be of significant interest to the oil companies as the additional flooding of land will increase drilling costs. The Chamber has assisted in the radio programs of the OIIC, pushed for a commercial airline stop at Williston which the oilmen desired, and sponsored an annual Oil and Farm Festival Day in Williston. It has been avowedly neutral in the oil spacing issue because, as has been previously discussed, there has been a definite conflict here between the oil industry and the Williams County Landowner's and Royalty Owner's Association. With this last possible exception, the Williston Chamber of

Commerce has energetically sponsored and promoted activities which were presumably in the interests of oil development in the Williston area.

The results of a survey question concerning leadership are interesting and somewhat indicative. The question posed was—"What about town leaders? Who in your opinion are the town leaders?" Only the interviewees in Williston and Tioga were quizzed. The results are presented in Table XXXIV.

Table XXXIV

TYPES OF ANSWERS, BY WILLISTON AND TIOGA RESIDENCE (AND LENGTH OF RESIDENCE IN WILLISTON), TO THE QUESTION AS TO WHO WERE LOCAL LEADERS

	Williston[1]		
Types of Answers	Old	New	Tioga
There are none	4	2	5
Don't know	109	64	39
Business Groups	73	21	5
Professional Groups	13	2	8
Policians and government officials	35	8	31
Other	5	1	4
Older Group	17	3	4
New Group	4	3	10
TOTAL	260	104	106

[1]The "either" category are included in the "old" column.

Thus, approximately 47% of those polled in Williston did not know if there were any town leaders to provide the community with leadership but the percentage was lowered to about 38% in Tioga. However, nearly 26% of those questioned in Williston considered business groups to be the source of leadership; in Tioga, that percentage had decreased to less than five. To this writer, it seemed rather remarkmarkable that almost 30% of the respondents in Tioga selected politicians and government officials as the town leaders but that the percentage was less than twelve in Williston. But the results seem generally to support, either directly or indirectly, the original hypothesis—most people are not interested enough in community affairs to be concerned about leadership or else they look mainly to business groups to supply the necessary leadership.[80]

(4) *The Farmer Versus the Corporation*

In a hearing before the House Finance and Taxation Committee of the North Dakota state legislature in late February, 1953, Mr. C. E. Boone, a vice president of the Amerada Oil Company, was queried as to how the Northern Pacific Railroad Company was able to get a 30% royalty agreement with Amerada for any oil that might be discovered under the extensive tracts of land which the Northern Pacific owned in western North Dakota. Mr. Boone's comment was: "there will always be exceptional deals."[81] Thus the farmer's usual 1/8 or 12½%

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becomes 30% for the railroad, or, in other words this railroad receives about 2½ times the customary amount of oil income.

Again, Professors Voelker and Parcher write that "the most common primary term for leases granted by private owners in North Dakota is 10 years, although many leases for 5 and 7 year terms have also been recorded. Where a State or a political subdivision holds the mineral rights, the leases are generally for 5 year terms."[82]

Both of these situations have been related in order to exemplify the concept of power in the formation of oil policy. One might conjecture as to what would have happened if the farmers had organized themselves effectively into a "land bloc" which could then have presented itself to the oil companies as a genuine "countervailing power."[83]

VIII. *The Future of Oil Politics in North Dakota*

In the early years of oil discovery in North Dakota there was an abundant amount of speculation as to how oil would affect the political scene. The major postulate of this section is that oil has, thus far, meant more of the same. The northwestern area of North Dakota is strong Non-Partisan League country. The election returns point up the following general voting patterns in this area for the years 1950, 1952, and 1954. The NPL'ers vote for their candidates who have thus far filed in the Republican column in the primary and the Democrats are not much in evidence. In fact, many of the latter, as well as some independents, vote for the NPL candidates. Then in the fall the Democratic candidates receive a vote four to ten times more than was true in the primary. Apparently that vote comes from NPL'ers who switch to the Democratic column, from some "stay-at-home-in-the-primary" Democrats, and from those inscrutable, but prevalent, independents.

A. An Influx of Democrats

The political soothsayers in North Dakota have been conjecturing upon the voting habits of the new population that oil has brought into the State. The simple syllogism was — Southerners are Democrats; Southerners have moved into North Dakota: North Dakota will receive an influx of Democrats. The election returns seem to indicate that the oil workers have not stayed in North Dakota long enough to meet residence requirements or that most have simply failed to exercise the franchise. The questionnaire was used again in an attempt to gain some further insight into this matter. In Williston, Ray, and the Impact Areas, this question was posed—"Would you please state your political party or factional affiliation, if any, in 1952? Today?" and the resulting answers were compiled and organized into Table XXXV.

The results of this survey appear to substantiate partially the hypothesis although the years used were 1952 and 1954 and a pre-oil discovery year, such as 1950, was not a part of the question. The Democrats, according to the survey, increased their strength in Williston by over 6% from 1952 to 1954 but the Republican, ROC, and Republican-

Table XXXV

POLITICAL AFFILIATIONS, BY WILLISTON BASIN LOCALITY RESIDENCE AND LENGTH OF RESIDENCE, FOR 1952 AND 1954

	WILLISTON						IMPACT AREAS						RAY	
Types of	Old		New		Totals		Old		New		Totals			
Answers	1952	1954	1952	1954	1952	1954	1952	1954	1952	1954	1952	1954	1952	1954
Democrat	90	97	44	44	134	143	14	15	1	1	15	16	54	46
Democrat-NPL	2	3	......	......	2	3	1	1	..	..	1	1	1	2
Republican	100	84	31	33	144	117	13	9	1	..	14	9	19	19
Republican-ROC	38	37	19	18	58	55	15	15	..	..	15	15	6	5
Republican-NPL	21	18	6	6	27	24	20	13	..	..	20	13	2	2
Independent	67	57	31	25	97	83	17	17	5	5	22	22	21	21
Other	......	2	......	1	......	1	....	8	..	..	....	8	......	3
Undecided	4	23	1	15	5	39	3	4	..	..	3	4	5	2
No Data	......	1	......	......	1	......	....	1	..	1	....	2	1	9
TOTALS	322	322	142	142	464	464	83	83	7	7	90	90	109	109

NPL, vote for 1954 (196 votes) it is still substantially more than the Democrat and Democrat-NPL combination (146). The key vote then is in the "independent" and "undecided" categories (121 votes). Some political unrest and uncertainties are clearly evident from a percentage increase in the "undecided" vote from 5 in 1952 to 38 in 1954.

The data obtained in the Impact Area are indecisive. There was a noticeable loss in the Republican and Republican-NPL vote but the respondents seemed to be rather negative in terms of present intentions.

The statistics from Ray may be rather deceptive. It appears that slightly over 50% of the respondents were Democrats in 1952, although the percentage had decreased by 1954. However, the Democrats never carried Ray in any election from 1950 through 1954 for Federal offices, or the office of governor. It is always possible that the Democrat vote stayed at home, but not likely.

All in all, there is only slight evidence of any influx of Democrats into North Dakota because of the discovery of oil. The potential Democratic vote was of a migratory type and the more or less permanent oil personnel is not of sufficient numerical size to alter the existing patterns to any appreciable degree. Nevertheless, the "independent" and "undecided" vote is significant and offers the potential for a considerable shift in the political intentions of the electorate.

B. Oil and Possible Political Realignments

Without exception, those political leaders in Williston and surrounding areas who were interviewed stated that the oil companies and their interests were being supported by the ROC. Some believed that the coming of oil had definitely been instrumental in the increased strength of the ROC in the Williston area. But others thought a reaction was setting in, especially among the farmers, due to increased farm labor costs, poorer farm roads, higher legal fees, the arbitrary attitude and procedure of a few of the oil companies, and decreased drilling. Heretofore, however, the ROC had supported the oil companies on every major oil policy issue and has not especially suffered at the polls for doing so.

There is considerable diversity of opinion as to the role the oil companies have played thus far in direct support of the ROC. A prominent leader in the NPL said that the oil companies had remained aloof from any factional affiliation and would continue to do so on his advice. An important official in the ROC said that the oil companies, as such, had made no contributions to the ROC and he believed that individual oilmen, in 1954, had furnished not more than $500 of the Williams County ROC budget of around $3,500. But a well-known Williston lawyer "knew" that the Williams County ROC organization had contributed $25,000 to beat Senator Carroll Day in the 1954 primary and that most of this money was from oil interests. However, Senator Day, in a personal interview, estimated the sum to have been

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around $15,000 and he was not certain as to its source, but "probably some of it came from oil interests."[84]

This information is obviously somewhat contradictory and, just as obviously, someone is in error. What this means for the future one can only conjecture. If the NPL stays in the Republican column it appears more and more likely that the organization will favor a slightly higher oil tax. In such a case the oil interests may become more than lobbyists and actually participate, at least financially, in the factional fights. If the Democratic and NPL organizations merge, the issue of oil politics remains in doubt. One political leader who might be influential in this merger, or in preventing it, thought that the gross oil production tax should be increased up to even 50%, "such as is done in Saudi Arabia." If this were openly advocated in the campaign, oil politics in North Dakota would really be at the explosive stage.

C. The Key—The Future of Oil in North Dakota

The future role of oil politics in North Dakota appears to be governed primarily by the future of oil development in this state. If a relatively static condition, such as was evident in the latter part of 1954 and during most of 1955, continues then oil interests are going to be a powerful lobby but not "king oil" as some have claimed. But an expansion of the oil fields—such as might occur in Burke, Renville and Bottineau counties where wildcat wells have proved to be producers—might well change the political scene. It must be remembered that usually 12½% of the gross income from oil goes to the landowner, or the owner of mineral rights. If oil production becomes very widespread—and it is also worthy of note that, in statewide terms, "discovered" oil fields account for a very small percentage of total land area—the oil "public" will be expanded somewhat proportionately. Discovery of many new fields, or a substantial enlargement of those already discovered, would also increase the political base of the oil interests. The reason for the increase in power is rather well summarized by a recent story—"the last time you reported on him [a cousin] they had struck oil on his land and his liberalism was going down just as fast as the oil was coming up."[85]

Thus we return to the ancient dialogue between Socrates and Thrasymachus—"Listen, then, Thrasymachus began. What I say is that 'just' or 'right' means nothing but what is to the interest of the stronger party. Well, where is your applause?"[86] Whether one applauds or not is a question of values.

FOOTNOTES

1. Robert Penn Warren, *All the King's Men* (New York: Harcourt, Brace, and Co., 1946) p. 355.
2. John Burke, 1907-1912 and John Moses, 1939-1944.

3. The terms "radical," "liberal," and "conservative" are used herein to denote the degree of social, economic, and political changes that are desired. That is, the conservatives favor the status quo, or very cautious change, etc. In no instance are the terms used in the sense of being anti-democratic. See Clinton Rossiter, *Conservatism in America* (New York: Alfred A. Knopf, Inc., 1955), passim, but especially his introduction wherein these terms are more strictly defined.

4. The North Dakota Farm Bureau is a new and growing organization in the State—10,196 members in 1954—but its strength in the Williston Basin area is negligible.

5. North Dakota Oil and Gas Association, *Articles of Association and By-Laws,* dated August 21, 1952.

6. Five persons registered with the Secretary of State during the 1955 legislative session as lobbyists for the NDOGA.

7. David Truman, *The Government Process* (New York: Alfred A. Knopf, Inc., 1951) p. 150 and passim.

8. State of North Dakota, *Report of the North Dakota Legislative Research Committee,* 33rd Legislative Assembly, 1953, pp. 39, 43.

9. North Dakota's gross production tax is, at 4¼%, higher than most other states. See Interstate Oil Compact Commission, *Gross Production and Severance Taxes Imposed by Various States,* (Oklahoma City, Oklahoma, no date).

10. Interstate Oil Compact Commission, *A Form For an Oil and Gas Conservation Statute* (Oklahoma City, 1950), 33 pages.

11. State of North Dakota, *Journal of the House,* Thirty Third Session of the Legislative Assembly (Bismarck, Bismarck Tribune, 1953), pp. 6-10.

12. The word "low" is somewhat of a value term as used in this sentence. The ROC considered the tax to be "moderate."

13. It is not considered necessary to document very extensively this account of legislative action on oil measures. The printed sources are the *Grand Forks Herald* and, to a lesser extent, the *Fargo Forum, Bismarck Tribune, Williston Herald,* Non Partisan League *Leader, North Dakota Union Farmer,* and the official House and Senate *Journals.* Also, the author would like to acknowledge some of the persons whom he interviewed on this subject of oil legislation. Their assistance was cordially granted and most helpful. They were: W. S. Davidson, Sr., President of the American State Bank in Williston; Carroll Day, State Senator from the 6th District in Grand Forks County and a leader in the Senate Coalitions in 1953 and 1955; C. Emerson Murry, Director of the Legislative Research Committee; Iver Solberg—State Senator from Williams County; Harry Polk, publisher of the Williston Herald; Arley Bjella, attorney in Williston and a member of the State ROC Executive Board; Arthur Link, former chairman of the McKenzie County Farmers Union and presently State Representative from the 41st District; James Key, chairman of the Democratic party in Williams County; Clair Amsberry, prominent Farmers Union member and Vice-Chairman of the Williams County Democratic party; and Walter Burk, a Williston attorney who is acting Secretary for the Williams County Land Owner's and Royalty Owner's Association and President of the Upper Missouri Development Association. Many other persons were very cooperative and generous with their time and information but in the field of oil politics the above named interviewees were of the most assistance.

14. In essence, a depletion allowance permits the oil companies and other owners of mineral rights to deduct a certain percentage from their income tax, on the income received from oil, and be taxed only on the remainder. Federal law has such a provision but North Dakota, prior to 1953, did not. The theoretical justification for the depletion allowance is that the oil that is produced

depletes the capital investment and consequently such a provision is necessary in order to attract more and adequate risk capital.

15. North Dakota Farmers Union, *Policy and Action Program—1952* (Jamestown, 1952) p. 24.
16. Burdick, op. cit. p. 16.
17. *Grand Forks Herald,* February 13, 1955.
18. Interview with Senator Day, July 1955. He also stated that there was some dissension within the Senate Coalition regarding the allocation of revenues received from the tax but in order to obtain the support of Senator Solberg, and other "oil" Senators, it was decided not to disturb that feature of the bill.
19. State of North Dakota, *Journal of the Senate,* 33rd Session, (Bismarck; State Capitol, 1953), see Index, p. XIV.
20. The purpose of the clincher motion is to make reconsideration of a bill more difficult.
21. *Grand Forks Herald,* February 28, 1953. There is some question as to whether a "snake dance", or anything like it, actually occurred.
22. *Ibid,* March 2, 1955.
23. Senator Orville Hagen of McKenzie County and Senator Axel Olson of Mountrail County stayed with the Coalition on the 25-24 vote, but on the vote for final passage of the amended bill, 28-21, Hagen voted "aye."
24. Senate Journal, *op. cit.* pp. 720-724, has the remarks of Senators Schrock, Day, Duffy, Bridston, Streibel, and Nordhaugen after the final passage of S. B. 41. Also, Senator Nordhaugen's statement is on pp. 463-465.
25. *Grand Forks Herald,* February 8, 1953.
26. *Fargo Forum,* January 27, 1955.
27. North Dakota Farmers Union, *Policy and Action Program*—1955, p. 36.
28. *Grand Forks Herald,* February 19, 1955.
29. *Grand Forks Herald,* February 10, 1955.
30. Woodrow Wilson, "The Study of Administration," *Political Science Quarterly* (1877) Vol. II, pp. 197-222.
31. It should be noted that the Governor has veto power over the decisions of the Commission.
32. An interesting, although rather confusing, analysis of the well-spacing issue is found in a volume which contains the transcripts of hearings held by the North Dakota State Industrial Commission in Bismarck from January 16-18, 1952, *Hearing on Eighty Acre Spacing for Beaver Lodge Pool* (Bismarck; State of North Dakota, 1952), 256 pages.
33. But there does seem to be a serious question of ethics involved here. In any respect, a few of the landowners who were interviewed claimed that verbal promises were made that the drilling on their land would be based on 40 acre spacing. There seems to be adequate evidence to state that these and other such types of practices occurred but by whom, and to what extent, is much more difficult to ascertain.
34. State of North Dakota, Minutes of the Industrial Commission, May 10, 1954. Case No. 60, Order No. 67 (Fryburg-Madison Pool).
35. The rulings vary with geological condition, etc. The Newburg field in Bottineau County has 40 acre spacing; most other fields have an 80 acre ruling; the Sanish field has 160 acre spacing.
36. Letter, from Mr. Lawrence R. Alley, Assistant Executive Secretary, Interstate Oil Compact Commission, to the author, August 25, 1955.

37. Interstate Oil Compact Commission, *Oil for Today—And For Tomorrow* (100C, Oklahoma City, 1953), p. 66.

38. *Ibid*, p. 69.

39. These quotas are based on a calculation which takes into account the acreage of the field and the depth of the well, among other factors. That is, the larger the spacing rule in that field, and the deeper the depth of the individual well, the greater the production quota. See the Industrial Commission of North Dakota, *General Rules and Regulations for the Conservation of Crude Oil and Natural Gas,* adopted December 1, 1953, Rule 505, p. 53-54.

40. State of North Dakota, *North Dakota Blue Book* (Bismarck: *Bismarck Tribune,* 1954), p. 90 and Chapter 38-0804 of the 1953 *Supplement to the North Dakota Revised Code of 1943.*

41. *Grand Forks Herald,* June 20, 1954.

42. See North Dakota Public Service Commission, *Sixty-third and Sixty-fourth Annual Report,* for the biennial period ending June 30, 1954, pp. 93-112.

43. *Williston Herald,* June 23, 1955; *Minneapolis Tribune,* June 25, 1955.

44. For more detailed information regarding this dispute, reference is made to Case No. 5351 and Case No. 5353, Public Service Commission, State of North Dakota.

45. Table No. XVI.

46. *Grand Forks Herald,* June 20, 1954.

47. Letter, Office of the Tax Commissioner, to the Carter Oil Company, April 20, 1955; and Letter, Office of Tax Commissioner, to the Hunt Oil Company, August 14, 1953.

48. *Grand Forks Herald,* December 28, 1954.

49. League of North Dakota Municipalities, *Bulletin,* February, 1954, Vol. XXII, *Bulletin II,* p. 39. Apparently some of the residents complained about the impostion of a sewage charge because Mr. Willard Webster stated that the charge was "unavoidable" as $150,000 of the costs of the new sewer here were to come from special assessments and $200,000 from revenue. The *Williston Herald* opposed the bond issue (April 5, 1954) in a front page editorial.

50. *Williston Herald,* June 28, 1955 and June 29, 1955.

51. *Ibid.,* June 25, 1955.

52. *Ibid.*

53. Since April, 1913, Williston has had a Commission form of government. Four Commissioners and a president of the Commission are elected at large for five years, overlapping terms. The president has no veto power. The salary for each of the five officers is $780 per year.

54. One of the leaders for retaining the Commission form contended, in an interview, that the police chief was a "news-hound" and thus created an over-emphasis on the activities of the Police Department. Also, he believed that some of the new personnel lacked judgment and maturity.

55. It should be pointed out that, at the time of their election, two of the Commissioners lived on the west side of the city and the third Commissioner lived on the far north side, north of Harmon Park. Afterward, however, the three of them bought or built new homes on the east side of the city.

56. *Williston Herald,* February 22, 1954. One of the city officials doubted if Mr. Palmer had taken a leading role in this particular issue at all.

57. *Ibid.,* February 17-18-19-20-22, 1954.

58. Our own research indicated that the population of Tioga in the summer of 1954 was 1,608.

59. North Dakota League of Municipalities, *Bulletin* Vol. XXI, No. 11, November, 1953, pp. 25-26. This article is a report of an earlier editorial from the *Bismarck Tribune.*

60. *Ibid,* September 1955, p. 41.

61. *Grand Forks Herald,* February 17, 1953. The Financial plight of the schools was apparently so serious in the winter of 1952-53 that some of the Tioga teachers received IOU's rather than paychecks.

62. He was including the mill levies for sinking, reserve, and building funds.

63. Part of the Federal grant-in-aid program initiated by the Social Security Act of 1937.

64. This is a general statement and does not necessarily reflect the attitudes of the public welfare staff.

65. See S. N. Voelker and L. A. Parcher, *Land Ownership Problems and Oil Development,* North Dakota Agricultural College and U. S. Department of Agriculture, Agriculture Economics Report No. 6 (Fargo: N. D. Agricultural College, December 1952) and Stanley Voelker, *Mineral Rights and Oil Development in Williams County, North Dakota,* North Dakota Agricultural College and the U. S. Department of Agriculture, Bulletin 395 (Fargo: North Dakota Agricultural College, September, 1954.)

66. There is an article on School District No. 8 in the *Farm Journal,* October 1953, pp. 50-51, 183-85.

67. *Tioga Tribune,* June 30, 1955.

68. Power, herein, is defined as the ability of certain men to control and/or influence the actions of other men in obtaining the deference, goods, and services which the former desires. There are many definitions of power. See Floyd Hunter, *Community Power Structure* (Chapel Hill: University of North Carolina Press, 1953), pp. 2-3-4-139; John Hallowell, *Main Currents in Modern Political Thought* (New York: Henry Holt and Co., 1950), Chapter I; V. O. Key, Jr., *Politics, Parties, and Pressure Groups* (New York: Thomas Y. Crowell Co., 1952), Chapter I.

69. The term "businessmen" includes the top officials of the different types of oil concerns.

70. See Hunter's observations relative to "Regional City," *Ibid,* pp. 81 and 102.

71. A prominent state official questioned seriously the validity of this hypothesis. He believes the evidence reveals that the Legislative Research Committee was "the" prime formulator of oil policy in North Dakota, notably the Committee's role in the 1953 legislative session. But it is interesting to speculate as to what might have occurred if the proposals of the Legislative Research Committee and those of the business interests in the Williston area had been in substantial opposition.

72. John Dewey, *The Public and Its Problems* (Chicago: Gateway Books, 1956), p. 59.

73. Hunter, *op. cit.* pp. 81, 102, 109, 148. Also David Riesman's, *The Lonely Crowd.* (New York: Doubleday Anchor Books, 1953), particularly Chapter X, contains several useful insights and hypotheses bearing on this matter of political power in present-day America. But "veto groups" were not at all apparent in oil politics in North Dakota, except in regards to the spacing issue. However, to use Riesman's term, the public was the "unorganized."

74. At the state government level, a few of the politicians and government officials have provided a moderate amount of leadership.

75. It should be clearly stated here that the author believes there is considerable merit in the educational program of the American Petroleum Institute. The knowledge of most laymen will be substantially broadened by studying the material. However, it is questionable if this is education. Are there no alternatives to the courses of action presently followed by the major oil companies? Have no controversies arisen over the organization and actions of the oil industry? What different arguments were advanced by those engaged in the conflict? The questionable nature of this kind of an educational approach seems to be indicated by the text that the Committee issued on the economics of petroleum. (American Petroleum Institute, *What Makes This Nation Go.* New York: American Petroleum Institute, 1955.) A fine example of Spencerian philosophy is noted in the statement that ". . . every month last year, many hundreds of businesses were forced out of the race. Many have failed to offer the right product at the right price, and have seen their customers drift away . . ." "In time, the profit motive weeds out the inefficient and encourages the best." *Ibid,* p. 11. This may be true, or at least partially so, but are there not alternative philosophies as well as alternative analysis of what has actually occurred, that would need to be offered in a truly educational process?

76. American Petroleum Institute (OIIC), *Conducting the Petroleum Industry School Program,* (New York: American Petroleum Institute, 1954) pp. 2-3.

77. The committee, or its representatives, visited 24 high schools in 1954 and all placed orders with the committee for the free materials.

78. Mr. Kildow insists that "political" questions—such as a "proper" oil production tax—were the only kind that received no answers. The line between political and non-political questions would be difficult to draw but he believes that it has been strictly adhered to.

79. See the booklet published by the American Petroleum Institute, *The Conservation of Petroleum,* 1954, p. 10, and the Interstate Oil Compact Commission, *Oil For Today—And For Tomorrow, op. cit.,* pp. 23, 30, 43, 57.

80. Riesman believes that "the only followers left in the United States today are those unorganized and sometimes disorganized unfortunates who have not yet invented their /veto/ group." Riesman, *op. cit.,* p. 247.

81. *Grand Forks Herald,* March 2, 1953.

82. Voelker and Parcher, *op. cit.,* p. 5.

83. The term is explained in some detail in John Kenneth Galbraith's *American Capitalism* (Boston: Houghton Mifflin Company, 1952).

84. Senator Carroll Day was killed in an airplane crash on March 4, 1956.

85. *The Leader,* September 1, 1955.

86. Francis M. Cornford (ed.), *The Republic of Plato* (New York: The Oxford University Press, 1945), p. 18.

THE ECONOMIC IMPACT OF OIL DEVELOPMENT

Samuel C. Kelley, Jr.

An area that is committed to an economic function specialized in agriculture and in particular to a specialized commodity structure is invariably characterized by a level of income that is significantly lower and far more unstable than that of an economy founded on manufacturing activity. Extreme fluctuation and chronic depression in the commodity market accompanied by rapid technological change in methods of agricultural production have produced, in areas such as North Dakota, a low wage structure, persistent underemployment and standards of living that are not in accord with the dynamic growth present in other areas of the national economy.

Much of the current argument which treats the agricultural problem as one of improper allocation of resources to be corrected by the market mechanism is appropriate only to areas where alternative uses of resources are technically possible. In those areas where the alternatives are limited, as in North Dakota and much of the Great Plains area, the alternatives to continued employment in agriculture is migration to other geographic areas. The many forces which act to restrain population movements assure that the short term will be characterized by a labor force excessive relative to demand. For the long term the residual population of the declining area must continue to bear an unreasonably high and increasing overhead cost of the public and private services essential to the community welfare.

The impact of economic decline upon the population of the agricultural areas of the nation is evident in the fervor with which they have sought protective legislation and in the intense competition through which they are now attempting to broaden the economic base of their communities. Throughout the South and increasingly in the Great Plains Area, private and public agencies are engaged in gigantic promotional efforts to attract nonagricultural industries. Offers of financial assistance, tax offsets, land grants, low wage rates and "favorable" labor laws are the bait being used to attract new industries to areas in desperate need of additional employment opportunities and a bigger tax base.

Many of these areas are at a distinct disadvantage in the competitive struggle. Their small populations offer no concentrated market; they are remote from the urban concentrations that consume a large part of the nation's product; the labor force possesses few of the skills required in the complex of industrial production, and the physical resources possessed by the area are usually exploited most economically by shipping them in unprocessed form to established manufacturing areas. Their primary asset is an abundant labor supply continuously supplemented by the technological displacement of farm workers.

A taxonomic description of the impact of oil discovery on a local economy is in itself of little value to anyone other than the local historians and those eager members of the Chamber of Commerce who search for microscopic evidence of the utopian characteristics of their communities.

It may well be that the results of this study will serve no other purpose. It is, however, our premise that the Williston Basin Area possesses some relatively unique characteristics and that these characteristics provide an analytical basis for inference that may be applied appropriately in other situations and in other times .

The economic process which may be described here in terms of a real situation is the process of the induced response of an economy to a major autononomous change within it. In the majority of real situations the complexity of interrelationships between economic components and a wide variety of institutional restraints serve to confuse the analyst and to obscure the causal relationships between autonomous and induced changes.

From an economic viewpoint the characteristics that lend value to data derived from this area are the internal simplicity of the local economy and the simplicity of its relationship with other portions of the larger economy of which it is a part.

It is in this type of economic environment that the Williston Basin Oil development occurred. To interpret many of the economic phenomena within this development some general description of the environment is required. The Williston area is typical of the State in nearly every respect. The differences between it and other regions of the state are differences of magnitude rather than kind.

The two counties selected for analysis were selected primarily because at the time of the study they contained nearly all activity directly related to oil development in North Dakota. Fortunately, they also comprise the most important components of the economy of the area and inferences can be drawn for the residual areas with a relatively high level of confidence as to their validity.

The Economic Area

The basic economy of these two counties and the counties contiguous to them is agricultural. Until the oil discovery in 1951, land was the only natural resource in use, and all labor resources were used in direct or indirect relation to its cultivation.

Even the structure of the area's agriculture is simple. Limited rainfall, a severe northern climate, conditions of topography, and isolation from major consumer markets have limited land use to the production of two basic commodities, small grains and live-stock. The same conditions have required an extensive use of land, and the area is characterized by a relatively small number of very large farm units. Since the dry-farming techniques appropriate to the area permit extensive use of mechanical farm equipment, the labor requirements per farm unit are very small, normally being met by family labor.

This type of agriculture has limited the development of local manufactures in two ways. First, the farm products are those which may be shipped to areas closer to primary consumer markets in unprocessed form more economically than in processed form. There is no processing of agricultural products in this area other than that required for immediate domestic consumption. In fact, only a relatively small part of the local consumption of milled grains and livestock is satisfied by local production. Even the farmers of the region produce little for their own use, depending on the sale and export of their products in raw form and the import of finished goods.

A second way in which the development of local manufacture has been inhibited by the type of agriculture dominant in the region is that its limited and declining need for labor has produced a very low population density. In 1950, McKenzie County had fewer than three persons per square mile; Mountrail five persons, and Williams fewer than eight. Further, the population of the area has declined continuously since 1930. The net number of persons leaving Mountrail County in the period 1940-1950 was equal to 24 percent of its 1940 population. The Williams County loss was nearly 14 percent, although the city of Williston had a population increase of over 27 percent in the period.

A sparse and declining population offers little opportunity for the development of domestic manufactures intended to serve local markets, such as are found in most areas of the United States. In the Williston Basin, this industry group has been limited to a few dairies, bakeries, job printers and newspapers. Virtually all other commodities used in the area are produced elsewhere and nearly all that is produced in the area is exported from the area in a raw state.

In essence, the area is a raw materials producing economy which trades its raw commodities for finished goods imported from "abroad." Like most areas of the world's economy which produce raw materials for export, the local welfare is directly dependent upon economic conditions in other areas. Further, the dependence of the manufacturing economy on the welfare of this "basic" component is tenuous and remote. The demand for the commodity materials which it supplies is relatively inelastic under ordinary conditions of economic activity. In contrast, the conditions of supply are extremely competitive. This kind of an economic relationship has tended to promote and to preserve a rather primitive economy with the type of economic institution characteristic of the national scene at the turn of the century.

The primary employment is farming. The major secondary employment is in trade and transportation. Although farm establishments are very large in terms of land use relative to the national pattern, business establishments are very small. The proprietorship, partnership and cooperatives are far more characteristic than the corporate form of business organization. No firm in the area other than major utilities employed more than 200 persons prior to oil discovery.

The communities of the area are also small. Williston, the only urban area in the two counties, had a 1950 population of less than 8000, and there is no larger community within a radius of one hundred miles. Williston is the trade center of the area and a very large percentage of the goods consumed in the area pass through it in much the same way that imports arrive at and are distributed from a port city in the more primitive economic areas of the world. To a lesser degree, much of the area's product is collected for export through the facilities of this trade center.

The smaller communities of the area serve two basic functions. They are secondary areas of distribution for those consumer products which meet day-to-day needs such as groceries or farm materials and building supplies. They are also residential communities for retired farmers and for many of the numerous farmers and ranchers who do not live on their farms in the winter months.

The Trade Area Structure

Some evidence of the relative importance of Williston as a center for trade and service to the Williams County area is contained in the results of a sample of farm families and residents of the major secondary communities. It should be noted that these data were collected in 1954 and reflect a part of the developed changes induced by the oil activity.

Although Williston is approximately 50 miles from the oil field area (impact area), 73 percent of all families interviewed in this area bought their dress apparel from Williston merchants. Nearly all bought household furnishings in the same place, and more than a third did their banking in Williston banks. One development resulting directly from oil activity was the establishment of a medical clinic in Tioga, which is contained in this area, yet half of all residents in the area went to Williston for medical care.

Of all farm families in areas of Williams County, other than the eastern townships defined as the impact area, slightly more than half generally bought their groceries in Williston. Nearly 95 percent bought clothing there and went there for more medical care. About 90 percent thought of Williston as their center for bank transactions. Even more pertinent is the fact that in Tioga and Ray, the largest secondary trade centers in the area, two-thirds of all resident families purchased dress apparel and other consumer goods of the same class in Williston rather than in their own community.

The eastern edge of Williston's trade area is a topographical feature, a long coulee running north and south through Mountrail County passing through the community of White Earth just east of the major producing oil fields. This barrier has interrupted the county and township roads which would normally permit a westward movement. Westward traffic must move on U. S. No. 2 or to the north of the county line.

Much of the area to the east of this feature is served by Stanley, the county seat of Mountrail County, or by Powers Lake to the north. The trade distribution in this area is not so sharply defined as in Williams County. Stanley is a much smaller community than Williston and is without the variety of business establishments found there. The smaller communities of the county, Parshall and Newtown, are able to compete in the types of consumer demand usually satisfied in nonurban places. More important, Minot in Ward County is the State's third largest community and attracts many of the area's consumers of durable consumer goods and higher quality non-durables. For the western range of townships, Powers Lake is the dominant trade center. In all other areas of the county, using clothing and medical care as illustrative of consumption items, Stanley serves about a third of all farm families, while Newtown and Parshall together serve about 15 percent and Minot 40 percent.

The concentration of the area's trade and service activity is Williston; Stanley's and Minot's has been reduced in some ways and increased in others by the development of the oil extracting industry in the area. In a few cases, notably Tioga and Powers Lake and to a lesser extent Ray, the influx of population and the daily presence of large numbers of oil field workers has resulted in the establishment of new trade and service establishments and in the modernization and expansion of others. However, the majority of these establishments are bars, restaurants and grocery stores or service establishments of the business repair type. In several of the relatively few cases of additions to merchandising establishments, the new establishment has been a branch outlet for an existing firm in Williston.

In contrast to this slight diversification of trade in the area, Williston has experienced a greater increase in new establishments and in new lines of service than has the remainder of the area. This is primarily a result of the fact that although Williston is nearly 50 miles from the major oil discoveries, it occupies the center of the apparent geological area for oil prospects. By 1954, only the fringes of the area had been developed, in the Tioga area on the east and in the Montana fields on the west. In appraising both the existing situation and future possibilities, the major producers and the firms supplying materials for drilling activity selected Williston as their base of operations as a result of its location as well as its size.

In this sense, the trade structure of the area has not been modified by oil activity. Although growth in a few areas such as Tioga has been great relative to the past, Williston continues to dominate business activity in the area. The major economic impact of the development, changes in employment, income, sales and receipts, can be measured in terms of the changes in the economy of Williston. These changes are described and related to the causal development in a following section.

The Oil Industry

The autonomous factor inducing change in the area was the abrupt development of an industry completely new to the region. There had been interest and activity related to oil in the region for many years. The early activity was largely speculative, involving the sale of mineral leases based upon limited, intermittent and unsuccessful drilling activity. At the time of the present discovery, there was little or no interest among the general population in the oil potential of the area. The discovery well unleashed a psychological force which was intensified by the great need of the area for supplemental income and employment and by the fact that earlier failures had eliminated many expectations for this line of development.

In this type of situation, the petroleum extracting industry is particularly well suited to induce a wave of secondary development based upon the psychological and economic impacts of direct oil activity. As an industry, it is somewhat unique in the present American economic scene. It is a heterogenous mixture of speculative finance, production and service. It is a hard, driving, competitive business with the overtones of a circus and is encompassed in the speculative manipulation of a legislative session. In its totality it is as much a movement as an enterprise.

It is doubtful whether any other act of industrial development with equivalent economic potential can generate the psychological impact that is induced by an oil discovery. The search for oil involves several major acts of chance and provides an area of speculation for those who participate on the fringe. The speculative nature of oil development originates in two facts. First is the fact that in spite of the great improvement in the techniques for the study of the subsurface geological structure, there is no way to prove the presence of an oil reserve except to drill for it. Well drilling is an expensive operation, in particular when drilling depths are great. The cost of an exploratory well may range from 50,000 dollars to twice or three times that amount. The probability of success for a wildcat well is probably about 10 percent for the nation as a whole. On the other hand, the potential rewards are sufficient to induce many gamblers, large and small, to join the game.

A second condition adding greatly to the psychological impact is that the oil producer seldom owns the right to the oil which he hopes to discover and produce. He must obtain these rights by lease or in rare instances by purchase of the mineral rights. The rental that he must pay for the right to explore and produce oil on another's land will depend largely on the amount of interest by others and thus on the competition for lease rights. Delay rentals may vary from ten cents a mineral acre when there is little prevailing interest to more than one dollar when there is an actual oil show in the area. Further, it is customary for the lessee to pay a bonus at the time of leasing. Bonus payments may range from ten cents or even nothing to ten dollars or more.

To maximize his potential gain and to assure an unrestricted right to exploration, the producer must acquire mineral leases without initiating competition by his own acts of acquisition. Yet, the earlier he moves, the less information at his disposal with which to improve his estimate of the probabilities of success. As in stud poker, every turn of a card adds to one's knowledge of the probable value of the hand. At the same time, it increases the cost of staying in the game.

The oil game is played by amateurs and professionals. The fervor with which it is played is due in part to the fact that nearly everyone can get into the game. The sharp trading in leases adds to the cross current of rumor and confusion. The competitive pressures on rental price induce an optimism and excitement in the community that may easily lead to a rate of investment in other areas of local economy which are not warranted by the realities of the situation.

The pattern of lease buying in the Williston Basin has been described in an excellent pamphlet by Stanley Voelker of the North Dakota Agricultural College. He notes that Amerada Petroleum Corporation and Hunt Oil Company were assembling lease blocks early in 1948. By September 1949, several companies and brokers were competing for leases and slightly more than 120,000 mineral acres had been leased. In this early period, delay rentals averaged 13 cents a mineral acre, as did bonus payments. In the next six months, ending with the completion of the discovery, well acreage leased increased 189 percent and average delay rentals and bonus payments increased to 20 cents and 21 cents respectively. The most intense leasing activity began at the time of discovery in April, 1951. By the end of October of the same year, more than 568,000 additional acres were brought under lease. Average delay rentals had increased to 85 cents and bonus payments to 1.52 dollars per mineral acre. In terms of monthly rates, leasing activity in the seven months following discovery was 215 percent of the rate in the six months preceding activity. At the beginning of leasing activity, 82 percent of all leases were at 10 cents an acre. In the period after discovery, 99 percent were at one dollar or more. Dr. Voelker estimates that bonus payments varied from less than 10 cents (in some cases, nothing) to an extreme of 135 dollars in a few cases in the oil field area.

Data comparable to Dr. Voelker's data for Williams County are not available for other areas. However, the location of the proven oil fields indicates that the leasing pattern for Mountrail County was very similar to that of Williams County. As wildcat drilling extended through

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the Williston Basin, in attempts to define the area, lease activity occurred in nearly every area of the State. The extent and rapidity of the action is evident in the fact that by January 1954, 67 percent of the land area of North Dakota was under oil or gas leases. The boom characteristics of this phase of the oil development are indicated in a comparison of North Dakota and Oklahoma, a state with a much older oil extraction industry. These two states are of nearly equal size, yet only 39 percent of Oklahoma's land area was under lease.

In contrast to these indications of extremely rapid development in the Williston area, nearly all of those persons who came into the area with oil producing or contract and service companies felt that the Williston Basin development was restrained. At least, its development was slow relative to their experience in the Texas, Oklahoma and Wyoming areas.

This restraint is explained in several ways. Physical factors such as the greater than average drilling depth, the extreme cold of prolonged winters and the geographical isolation of the area all add to drilling costs and discourage marginal independent producers.

Institutional factors, in particular such political issues as depletion allowances, production tax rates, well spacing and production allowances appear to have encouraged major producers to move slowly in an effort to improve their position of power. These issues are discussed elsewhere in this study. From the standpoint of economic impact, it should be noted here that the domination of the Williston Basin Development by the Amerada Petroleum Company was generally believed by those interviewed to be a paramount factor in the relatively slow development of the area. The position taken by the Corporation on oil issues was almost universally echoed by the local business people where the success of their business ventures was contingent on oil related expansion.

In the development of an oil reserve, charges are often levied against the producers concerning intentional restraint of the development, usually by the owners of mineral rights. Some land owners insisted that supposed dry wells were potential producers. They believe that the producing company is exercising a means of market control in a glutted domestic market. This type of attitude may be more prevalent in the Williston area than in many other oil producing regions of the United States, first, because the isolation of the area, the supply problem in the National market, the lack of refining facilities and the limited means of transport of crude combined to create serious market problems. This situation was not relieved until the completion of the Standard Oil Refinery in Mandan and the pipelines from it to the east.

Second, the Williston development has been dominated by one major producing company, Amerada. It is more logical to attribute monopolistic activities to a dominant firm than to assume conspiracy among many otherwise competitive firms. The records of the State

Geologist indicate that by mid-year 1954, drilling permits had been issued to more than 150 producing companies. Many of these are large and established firms. Many others were "one-shot" combinations of individuals or business firms joined for the single purpose of producing one well.

Although the large number of "wildcat" operations provide an illusion of feverish competitive activity and support the psychological pitch of the community, a very large proportion of exploration and production has been conducted by Amerada. By mid-year 1956, there were 699 wells producing oil in the State. Nearly 76 percent of these (533) were drilled on leases owned by this company. Eight of every ten barrels of oil produced in the State prior to 1956 were produced through Amerada wells. Eighty-five percent of the State's oil output was produced in one of two fields, the Beaver Lodge and Tioga fields. Amerada produced 84 percent of this output.

It appears quite probable that Amerada did follow a very conservative development policy, as many employees of the company and its drilling contractors have stated. Such a policy may have been intended to serve the industry in the power struggle on regulatory issues. It seems also to have served the community by permitting a more orderly development with fewer stresses and unwarranted actions than might have been experienced under other conditions.

Economic Impacts

Oil field exploration and development has affected the local economy in quantitative and qualitative ways. It has increased the population, income and employment of the area. It has also changed the structure of the labor force and of business. The measurement of these changes is complicated by the fact the area of development is extensive and transitory. As was noted above, leasing activity has extended throughout the State, geological survey has also moved over a large area, and drilling activity in a particular location varies from week to week. The employees of a producing company and those who provide contract services are scattered in varying patterns among the many fields under production or areas under exploration.

Consequently, the measurements of income and employment, related to the industry, described below, have for the most part been derived by allocation of aggregate amounts on the basis of measures of activity such as the number of wells drilled or the volume of production. The basic data from which the allocations were derived were obtained from the individual well records of the State Geologist. In some cases, the results of allocation may differ slightly from later summary figures due to two major causes. One is the fact that the disposition of a well may change, the other, that the completion date of a well does not indicate accurately the period in which drilling activity occurred, in particular if completed early in the year.

In the structure of the petroleum industry, the producing company

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is the prime mover and the primary source of direct income. It initiates exploration, assembles lease blocks, sells and distributes the recovered oil. Most of the drilling activity is accomplished by a hierarchy of specialized subcontractors. Nationally, about 90 percent of all drilling is done on subcontract. In turn, drilling contractors contract for such specialized services as logging and cementing wells, rig moving and acidizing. The extent of sub-contracting complicates income accounting when income is accounted for on a cost basis. To avoid these complications, estimates of total cost have been based on average cost per well in North Dakota in 1954. These costs were then allocated by aggregating the major expenses of firms engaged in crude petroleum extraction and those in oil and gas field contract services. Major expenses include contract expenses only if they cannot be allocated within the major industry group.

Apart from leasing activity and geophysical exploration, the beginning of the present oil development was in 1950 and the initial production year was 1951. Tables XXXVI and XXXVII indicate the rapidity of development and the concentration of activity in Williams and Mountrail Counties. By the end of the study period, the preponderance of drilling activity had moved out of the two county area although the area continued to produce nearly 90 percent of the State output of petroleum.

Table XXXVI

WELLS COMPLETED IN NORTH DAKOTA—BY AREA AND BY PRODUCING STATUS, 1951-1954

	1951		1952		1953		1954	
	P*	NP**	P	NP	P	NP	P	NP
Williams County	1	0	80	17	119	10	107	13
Mountrail County	0	0	10	2	42	2	42	6
Other	0	9	2	58	19	85	39	136
State	1	9	92	77	180	97	188	155
Total Wells (Yearly)	10		169		277		343	
Total Wells (Cumulative)	10		179		456		799	

*Producing Wells.
**Non-Producing Wells.

Table XXXVII

PRODUCTION OF CRUDE PETROLEUM, NORTH DAKOTA AND SELECTED AREAS, 1951-1954 (THOUSANDS OF BARRELS)

	1951	1952	1953	1954
Williams County	25	1,481	4,248	4,135
Mountrail County	0	91	900	1,253
Other	0	26	218	637
North Dakota	25	1,598	5,466	6,025

It should be noted in the drilling record that in the wildcat area only two of eight wells drilled have produced oil. Within the area nearly nine of every ten wells drilled have produced oil, although not always continuously in commercial quantities. This fact adds to the concentration of oil related income in the two county area in view of the additional cost of completing and equipping a producing well.

These data indicate the concentration of oil production in Williams and Mountrail counties in the years prior to 1955. Further, nearly two-thirds of all production in other areas of the State occurred in McKenzie County; most of it in the Charlson (Madison) field. McKenzie County adjoins Williams County on the south and is relatively isolated from areas to the east by the Missouri River. It is a part of the Williston trade area and a very large part of oil related income originating in this county is spent in Williston.

On the basis of this record of drilling activity and oil production it is estimated that the total income derived from oil field expenditures in North Dakota amounted to approximately $700,000 in 1951. By 1954, annual expenditures had increased to nearly $33,000,000. These estimates do not include income derived from mineral leases, bonuses, oil royalties, the sale of mineral deeds or expenditures for the improvement of oil lands. The latter estimates are discussed below. Table XXXVIII contains estimates of expenditures by county and state for the years 1951-54. It is probable that they understate actual expenditures in 1951 due to the reliance on well drilling activity as the basis of estimate. Developmental activities such as geo-physical exploration tend to be under-estimated by this technique.

Table XXXVIII

EXPENDITURES BY THE CRUDE PETROLEUM INDUSTRY IN NORTH DAKOTA, 1951-1954 (THOUSANDS OF DOLLARS)

	1951	1952	1953	1954
Williams County	120	10,890	15,220	13,940
Mountrail County		1,350	5,270	5,530
Other	580	3,960	7,780	13,500
North Dakota	700	16,200	28,270	32,970

The potential effects of these expenditures on the economy of the area is limited by two factors. First, in oil field exploration and petroleum production, labor costs are small relative to the costs of supplies and machinery. Second, few of the materials and none of the equipment used is produced in the area or in the State. Of the amount spent for such goods, only that portion that is attributed to transport and distribution accrues to the benefit of the local economy. Further, the supply of drilling materials and equipment is a specialized area of business. The major suppliers follow the field establishing branch distribution outlets in competition for the market. Although these units may provide additional income to the area through consumption expenditure by staff and in the construction of service facilities, the major portion of their revenue is used to pay for a product produced elsewhere. For example, a major cost of completing a well is the cost of casing. Several

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major steel companies have established distribution centers in Williston and Tioga. These distribution points are relatively small establishments with few employees. The wage and salary income originating in their activity is a very small portion of the total expenditure for their product.

The distribution of expenditures by type and by area may be noted in Table XXXIX.

Table XXXIX

EXPENDITURES BY OIL PRODUCERS AND OIL AND GAS FIELD CONTRACTORS BY TYPE OF EXPENDITURE BY AREA, 1951-1954 (THOUSANDS OF DOLLARS)

	Wages & Salaries	Supplies, Minerals, Fuel & Energy	Machinery & Equipment	Not Allocated	TOTAL
Williams County					
1951	18	24	64	17	123
1952	1,714	2,318	5,225	1,632	10,890
1953	2,285	3,091	7,665	2,176	15,218
1954	2,123	2,873	6,910	2,023	13,930
Period	6,140	8,306	19,854	5,848	40,160
Mountrail County					
1952	213	286	652	201	1,353
1953	780	1,054	2,695	742	5,273
1954	850	1,149	2,723	809	5,530
Period	1,844	2,489	6,070	1,752	12,156
North Dakota					
1951	174	235	127	165	701
1952	2,963	4,006	6,411	2,822	16,202
1953	4,871	6,589	12,167	4,639	28,266
1954	6,015	8,136	13,084	5,729	32,964
Period	14,023	18,966	31,789	13,355	78,133

In the four years after 1950, oil activity, exclusive of the acquisition of mineral rights, cost more than 40 million dollars in Williams County and over 12 million in Mountrail. Of these amounts, approximately 8 million was spent for wages and salaries by oil producers and contractors .They spent nearly 11 million on supplies, minerals and fuel, and more than twice that amount (26 million) on machinery and oil well equipment. The total expenditure includes nearly 14 million dollars that has not been allocated by type of expenditure. These unallocated expenditures contain two major accounts; the entrepreneurial profits of contractors and expenditures for contract services outside of the industry group.

Of major importance in estimating the direct impact of the oil development on the local economy is the fact that less than 16 percent of the total expenditure was for wages and salaries. It has been noted above that a very small proportion of expenditures of other types benefit local establishments and payrolls.

In contrast to oil field expenditures, income from mineral leases and royalty payments are received in large part by the land owners of the area and are a source of additional consumption expenditure. The magnitude of income of this type has been estimated for the years 1948-53 on the basis of the Voelker study for Williams County. The pattern of leasing activity has been described above where it was noted that the leasing of mineral rights began in 1948. In the first two years of activity, total payments for leases and bonuses in Williams County are estimated at less than $50,000. By 1951, lease activity in the area reached a peak and bonus payments above exceeded one million dollars. By the end of 1953, royalty payments had reached the same level and offset the decline in bonus payments. Total income from mineral rights approximated $2,000,000. Due to the sale of mineral acres by mineral deed it is impossible to estimate the proportion of lease and royalty income accruing to original owners in the area. In 1951, the value of mineral acres sold was slightly more than three million dollars. Approximately one-third of the acreage sold was sold by owners, the remaining two-thirds by brokers. Income derived from sales are a type of transfer payment and duplicate in part the income received from lease payments and oil royalties. In one sense, the owner is receiving a prepayment of lease and royalty income with the sale of mineral acreage. The speculative gains of brokers are primarily transfers of income from other persons or corporations and are not usually net addition to income.

Data on the pattern of leasing activity in Mountrail County are not available. In view of the location of the major proven fields, it is probable that the pattern approximates very closely that of Williams County and that income from leases and bonuses is only slightly less than the amounts indicated in Table XL.

Table XL

DELAY RENTALS, BONUS PAYMENTS AND OIL ROYALTIES TO INDIVIDUALS, PRIVATE CORPORATIONS AND GOVERNMENT AGENCIES, WILLIAMS COUNTY, 1948-1953. (THOUSANDS OF DOLLARS)

	Delay Rentals	Bonus Payment	Royalties	Total
1948-49	19	25		44
1950	50	36		86
1951	332	1,139	6	1,447
1952	644	224	374	1,242
1953	650	60	1,074	1,784

A. *The Business Structure*

In view of the volatility of the business expansion during the period of oil development and the high mortality of small business ventures during the period, it is extremely difficult to describe the pattern of change that occurred. Data from the 1948 and 1954 Census of Business indicate that the number of establishments in the trade and service industries increased by 32 percent in Williams County and declined by 11 percent in Mountrail County. The net increase in Williston included 82 of the total net increase of 133 establishments in Williams County. Yet a comparison of the Williston Telephone directories for 1950 and 1953 indicates that the number of new establishments operating in the area during the period was much greater than census data suggest.

The 1953 directory listed 132 trade and service establishments that were not listed in 1950, exclusive of 33 firms supplying the oil industry and 24 firms in oil field contract services. Further, the 1950 directory listed 40 such establishments not listed in 1953. This difference in the number of establishments reported results in part from definitions of business establishments, in part from the inadequacy of directory information, and in part from changes in ownership and in the name of the establishment. Together, these factors account, however, for a relatively small part of the difference. Direct investigation verified the extremely large turn-over in establishments in the early period of oil development.

Table XLI below offers some comparison of the number of establishments for selected years.

Table XLI

NUMBER OF ACTIVE BUSINESS ESTABLISHMENTS BY TYPE OF ESTABLISHMENT, TRADE AND SERVICE INDUSTRIES, 1948-1954, WILLISTON, NORTH DAKOTA

	1948[1]	1950[2]	1953[2]	1954[1]
Wholesale Trade:	21	19	50	46
Retail Trade:	127	142	169	153
Food Stores	16	16	26	22
Eating & Drinking	25	28	29	28
General Merchandise & Apparel	16	16	16	15
Furniture & Appliances	9	9	14	9
Automobiles & Gasoline	23	33	36	32
Lumber & Hardware	16	17	19	15
All other	22	23	29	32
Service	63	59	79	91

[1] U. S. Department of Commerce, Census of Business.

[2] Derived from local census and telephone directories.

The estimates derived for 1950 and 1953 are the number of establishments active in that year. As was noted above, these point data obscure the number of establishments entering and leaving the area during the period and estimates of payrolls, income and employment for the area are understated by such data.

Within this limitation, the major changes in the business structure of the study area appear to have been in the number of new establishments in wholesale trade and in the service industry. In absolute terms, Williston experienced a very large proportion of the total increase and Tioga and environs much of the residual gain. Mountrail County gained only in the number of service establishments and had a net loss in the number of firms in wholesale and retail trade. Williston contained 73 percent of the total increase in Williams County. It had 86 percent of new firms in wholesale trade, nearly 60 percent of new retail establishments and a little more than half of the net addition to the service industry. In relative terms, the greatest change in the trade and service structure was in wholesale trade, an increase of 119 percent. The greatest change in the Tioga area was in service, a gain of 104 percent. These two measures describe the pattern of deevlopment in the area, the concentration of oil field suppliers in Williston and of subsidiary services in the oil field area.

Changes in the sales, receipts and payrolls of the three industry groups are shown in Table XLII. Sales and receipts in Williams County in 1954 exceeded the 1948 level by 24,319,000 dollars or 51 percent. The gain in Williston was 19.3 million dollars, an increase of 71 percent over 1948 and nearly 80 percent of the county gain. Williston also received 94 percent of the increase in wholesale sales and nearly 80 percent of the gain in service receipts.

Table XLII

SALES, RECEIPTS AND PAYROLLS IN TRADE AND SERVICE INDUSTRIES, 1948 AND 1954—WILLISTON, WILLIAMS COUNTY AND MOUNTRAIL COUNTY (THOUSANDS OF DOLLARS)

	Sales & Receipts		Payrolls	
	1948	1954	1948	1954
Wholesale Trade:				
Williams County	$25,628	$39,000	$ 551	$1,541
Williston	10,763	23,377	338	1,073
Mountrail	(D)	(D)	(D)	(D)
Retail Trade:				
Williams County	$21,207	$30,357	$1,653	$3,030
Williston	15,601	20,914	1,277	2,294
Mountrail County	8,112	10,839	454	763
Service:				
Williams County	$ 972	$ 2,769	$ 166	$ 523
Williston	781	2,168	153	476
Mountrail County	178	426	16	52

U. S. Department of Commerce: 1954 Census of Business.

Business expansion added nearly three million dollars to payrolls in Williams County, with the greatest absolute gain in retail trade and the greatest relative gain in the service industry. Three-fourths of the increase in payrolls occurred in establishments located in Williston. Mountrail County had modest gains in payrolls in retail sales and services, however, the gain in this county as a whole was less than a third of the increase in the same industry groups in Williston.

One general indication of the effect of oil activity on the trade structure of the area and the State may be inferred from State data on sales tax collections for the period 1950-1953. (TABLES XLIII AND XLIV.)

Table XLIII

SALES TAX COLLECTIONS FOR SELECTED COUNTIES AND THEIR SUB-DIVISIONS, 1950-1954 (THOUSANDS OF DOLLARS)

	1950	1951	1952	1953
Williams County	$375.7	$407.7	$578.6	$788.9
Williston	288.6	318.4	460.1	614.8
Ray	22.2	23.1	34.6	45.5
Tioga	11.6	12.8	30.4	70.9
Mountrail County	148.6	155.5	158.9	173.9
Stanley	62.7	62.6	65.2	74.0

Table XLIV

PERCENT OF STATE SALES TAX COLLECTION BY SELECTED COUNTIES AND THEIR SUBDIVISIONS, 1950-1954

	1950	1951	1952	1953
Williams County	3.32%	3.37%	4.70%	6.30%
Williston	2.55	2.63	3.74	4.91
Ray	.20	.19	.28	.36
Tioga	.10	.11	.25	.57
Mountrail County	1.31	1.29	1.29	1.39
Stanley	.55	.52	.53	.59

SOURCE: North Dakota Tax Department, Sales Tax Division.

Both counties and their major subdivisions gained relative to the State in sales activity as reflected by tax collections. The gain in Mountrail County and in Stanley was slight and occurred late in the period as exploration spread away from the site of discovery. In Williston and Tioga, the gains were immediate and large. It is descriptive of the pattern of development that in 1950, tax collections in Ray were nearly double those in Tioga. By 1953, collections in Tioga were almost 50 percent greater than in Ray.

A second general indicator of changes in business activity is found in bank deposit data for the area.[1] These data indicate that the banks in Williams County experienced virtually no net increase. The following data for banks in the ten northwestern counties indicate the relative rates of increase.

County	Percentage Change in Total Deposits Dec. 31, 1950 to Dec. 31, 1954
Burke	+ 15
Divide	+ 9
McLean	— 4
Mountrail	+ 2
Williams	+ 48
Renville	— 24
Bottineau	0
McHenry	0
Ward	+ 1
McKenzie	0
Nine counties other than Williams	+.18

The increase in deposits in Burke County is attributable almost entirely to the deposits placed in the new bank at Powers Lake, only about ten miles from the production area.

Despite the fact that a considerable portion of the oil production area lay in Mountrail County, there seems to have been little effect on deposits in banks in that area. The bank at Stanley, which was only about 20 miles away, experienced a ten percent decline in total deposits during the four year period.[1] The banks at Newtown and Parshall were too remote, too far off of Highway Two, to experience much effect from the oil business.

Except in accounting for the new bank at Powers Lake, the major impact of the oil development seems to have been in the two banks at Williston and the banks at Tioga and Ray. These banks had the following percentage increase in demand and time deposits between December 31, 1950, and the end of 1954.

	Percentage Increase in Deposits		
Williams County Banks	Demand	Time	Total
Ray—Citizens State Bank	57	41	54
Williston—American State Bank	36	62	42
Williston—First National Bank	31	50	37
Tioga—(New bank in 1951)			
Total for all banks in the County			48

In contrast with the banks at Williston and Ray having increases ranging from 37 to 54 percent in total deposits, none of the other banks in the ten county area had increases in excess of 16 percent. This included the three banks in Minot which had increases of only about 2 percent during the period.

Since the banks in the other nine counties located in the same general area of the state experienced virtually no net gain in total deposits, it seems logical to assume that the increases experienced by the banks in Williams County are attributable directly or indirectly to oil. In absolute amounts, this increase amounted to about six and one-half million dollars, an increase from $13.4 million to $19.9 million.

The increase in demand deposits was somewhat less than that for time deposits. This increase in demand deposits is significant since only one other bank in the ten state area had an increase in excess of ten percent. Two thirds of these banks experienced decreases in deposits. This increase in demand deposits in Williams County banks reflected the increased number of households and business firms serviced by these banks.

Percentage data on time deposits are somewhat more unreliable for comparison purposes since some of the smaller banks began making real efforts to attract time deposits during this period. Total time deposits, however, for all banks in the nine counties other than Williams

County increased by only 13 percent. This was in contrast to the 60 percent increase in time deposits in the Williams County banks.

A concomitant of an increase in deposits is usually a comparable increase in loans and investments. In Williams County loans increased by 189 percent or an increase from about 3 million to 8.6 million dollars. This increase was very much in excess of the 45 percent increase for the other nine counties. In only one other county was the increase in excess of 80 percent.

This was a period of rather substantial expansion in loans throughout the state and some decline in assets held in the form of U. S. government bonds and other securities. The expanding communities served by the banks in Williams County, however, provided substantial outlets especially for housing and installment loans.

Data for two of the banks in the county indicate the following percentage increases in major loan categories.

	Percentage Increase Dec. 1950 to Dec. 1954	
	Bank A Medium Size	Bank B Large
Commercial and Industrial Loans	83	130
CCC Loans	390	26
Other Loans to Farmers	242	286
Real Estate Loans	1430	86
Installment Loans		
Auto	1350	217
Other	1700	267

The phenomenal increase in real estate and installment loans in the medium sized bank was a reflection of a marked change in the pattern of lending. Many North Dakota banks in this size category were just beginning to make loans of this type. Obviously, however, in this case the oil boom provided a much enhanced opportunity for loans in these categories. This is confirmed by the very marked increase in installment lending by the large bank which even in 1950 had a substantial amount of this kind of paper.

Another indication of the financial impact of the oil industry is to be found in sales of savings bonds. Since these are limited as to type of purchaser and to the amount which may be held, they provide some indication of liquid savings held by individuals. The growth in savings bond sales in Williams County and the decline in most of the other counties in the northwestern portion of the state is shown in the following tabulation. Sales for the two year period of 1954 and 1955 are compared with the two year period of 1949 and 1950, because individual year comparisons are apt to be erratic.

Only two of the ten counties had significant increases. The increase in Divide County is attributable to exceptionally good crops in both 1954 and 1955. There has been a declining amount of income from lease rentals in this county, so this factor would not account for any of the difference. Some of the increase in bond sales may be due to a rather aggressive "pushing" of bonds on the part of the Crosby bank. The increase in Williams County is largely attributable to the oil development. Part of it, however, is also due to the better than average crop in these two years. The data seem, therefore, to indicate that, while some of the increase in Savings Bond sales may be due to oil, that factor may be no more significant in this respect then a better than average crop.

County	Percentage Increase or Decrease 1949 and 1950 to 1954 and 1955
Burke	—21
Divide	+34
McLean	—17
Mountrail	—29
Williams	+25
Renville	—37
Bottineau	—10
McHenry	+ 4
Ward	—18
McKenzie	—48
Total (nine counties other than Williams County)	—13
Total for North Dakota	—17

B. *Construction:*

The major part of contract construction stemming directly from oil development and nearly all construction induced by it have occurred in two areas, Williston and Tioga and its environs. Apart from these two localities, only Ray with two trailer camps and an unwarranted residential development and Stanley with a modest residential expansion show any evidence of oil related influence on construction activity.

The pattern of construction activity in Williston is evident in an analysis of building permit valuations from 1950 to 1954. The value of construction covered by permits was $1,620,000 in 1950 and $1,380,000 in the following year. It increased abruptly in 1952 to $5,371,000 and reached a peak at $7,241,000 in 1953. (SEE TABLE XLV)

Table XLV

VALUE OF BUILDING PERMITS, BY TYPE OF CONSTRUCTION—WILLISTON, NORTH DAKOTA, 1950-1954 (THOUSANDS OF DOLLARS)

Type of Construction	1950	1951	1952	1953	1954
Residential	$ 719	$ 761	$3,622	$3,707	$1,186
New	634	657	3,311	3,472	1,053
Remodel	95	105	311	235	133
Public and Other:	154	315	538	1,474	641
Commercial	737	303	1,211	2,060	1,217
All Types	1,620	1,380	5,371	7,241	3,044

Residential construction provided the major part of building ac-

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tivity in the four years after 1950. Approximately 54 percent of the total value of permits issued was in residential construction. In 1951, only 61 new dwelling units were authorized. In 1953, permits were issued for 273 units and for 324 units in the following year. By 1954, a surplus of housing was apparent in the community, in particular in rental apartments. The number of units declined to 84 and the value of construction authorized was less than half of the number in the preceding year.

This abrupt increase in 1952 over 1951 was without question a response to the very strong pressures exerted by the influx of population with the discovery of oil. Although there had been a significant expansion in residential building after 1948 following a peak farm income, there was little vacant housing for the addition of several hundred migrant families. The "boom" characteristic of residential building activity in Williston is obvious when compared to new residential construction authorized in all urban areas of the State.

Table XLVI

PERCENTAGE CHANGE FROM PRECEDING YEAR IN URBAN RESIDENTIAL CONSTRUCTION AUTHORIZED, NORTH DAKOTA AND WILLISTON, 1950-1954

Area:	1951/1950	1952/1951	1953/1952	1954/1953
Williston	+ 4%	+376%	+ 5%	—70%
North Dakota	—20%	+ 20%	+15%	+20%

SOURCE: Derived from original data in office of Williston City Engineer.

The impact of preliminary oil activity was more than adequate to offset a general decline in 1951. Activity moved dramatically to a high plateau where it remained relatively constant through 1953. It fell sharply in 1954 and continued to decline through the first half of 1955.

Non-residential building responded to the new development in a similar way although with less force. It, too, is largely induced in a secondary manner rather than by the immediate needs of the oil industry. Further, the lag in activity was greater in this area of construction, since a greater proportion of expenditure appears to have been induced by secondary demand. The major construction items by or for the oil industry were an office building for Amerada, a small refinery and a number of warehouses or combination office-warehouses for major suppliers and contract service firms. Both office and refinery were authorized in 1952 and more than 50 percent of the value of warehouse permits issued, were issued in the same year.

In the five years extending through 1954, the permit valuation of the offices and warehouses noted above were less than 11 percent of the total value of private non-residential building authorized. In contrast, the valuation of utility construction (primarily telephone communication) was 26 percent of the total, hotels and motels nearly 21 percent and stores and service stations, 20 percent.

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The secondary effects of oil development acting through wage and salary payments, delay rentals, royalty payments and taxes, combined with the pressures exerted by a rapid increase in population are evident in public expenditures. Within five years, Williston spent 740,000 dollars on school construction, 675,000 dollars on church buildings and 790,000 dollars for additions to hospital and clinic facilities. Another half million was spent by the county for a new courthouse in 1953.

Comparing Williston to all urban places in the State, an index of building permit valuations based on the 1947-49 average indicates that activity in Williston greatly exceeded the State pattern (SEE TABLE XLVII).

Table XLVII

INDEX OF BUILDING PERMIT VALUATIONS, ALL URBAN PLACES OF NORTH DAKOTA AND WILLISTON, 1950-1954

1947-49 = 100

	1950	1951	1952	1953	1954
North Dakota	201	115	133	201	167
Williston	188	160	625	842	354

SOURCE: Williston public records and U. S. Dept. of Labor, Bureau of Labor Statistics.

Since building permit valuations are not available for Mountrail County or other areas of Williams County, a precise description of building activity in these areas is not possible. Inspection of the areas suggests that there was very little primary or secondary construction in Mountrail County and that the pattern of activity in the Tioga area was similar to that of Williston in every respect save one. In Tioga, the major proportion of construction originated in the oil industry. Major expenditures by the industry included several million dollars by the Signal Oil and Gas Company for a gas refining plant just east of the community. Amerada constructed a multi-unit "village" for its field personnel south of Tioga and several suppliers and contract service firms erected office and storage facilities within and adjacent to it.

Although commercial development was far less impressive in Tioga than in Williston, it occurred in a community that at the beginning of oil activity was rapidly becoming a "ghost town." Hotel, restaurant and entertainment and recreation facilities were virtually non-existent, and the community had no paved streets, sewage system, or municipal water supply. The oil industry literally created a new and living community from the old.

In addition to the large number of oil field workers moving into the area, the construction of the gas refining plant employed more than 300 people at peak activity. Many oil field workers, in particular drilling crews, own and live in trailers. Although large trailer camps were established in Tioga and vicinity, many migrants were forced to move into intolerable housing conditions. In several cases, abandoned grain storage sheds were moved into crowded rows and, after some

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slight renovation, rented at exorbitant prices as family dwellings. By 1954, two relatively large housing projects were nearing completion, reducing the demand pressure and eliminating much of the market for sub-standard housing.

The completion of the gas refinery and other major construction projects had restricted the boom activity in construction in 1954. By June of that year, unemployment was a more pressing problem for construction workers than were housing accommodations.

C. *Labor Force and Employment*

Changes in population in the area between 1950 and 1954 have been discussed in another section of this study. It is only necessary to repeat here that the attraction of employment opportunities created by the oil industry and the employment pattern of that industry brought many migrants into the area, expanding the size of the labor force. Over the period, Williston gained nearly 32 percent in number of inhabitants, Ray over 100 percent and Tioga and its environs more than 450 percent.

In contrast Stanley experienced an increase of less than 11 percent and Mountrail County and all other areas of Williams county had population losses.

The extent to which these population gains resulted from in-migration is evident in the statistics derived from the population sample census in 1954. (SEE TABLE XII.) One of every three persons living in Williston in that year did not live there in 1950. Nearly 28 in 100 persons came to Williston from beyond the borders of the two study counties. The proportions of migrants into the smaller communities of Ray and Tioga are much larger. In both communities, approximately 65 percent of the 1954 population entered the area after 1950. Less than 5 percent of the migrants into Ray and 10 percent of those into Tioga were former residents of Williams or Mountrail county. In the Tioga environs, only 10 percent of all inhabitants were 1950 residents in the two-county area.

The impact of this migration in the local labor force was much greater than population changes indicate. This fact is a result of the age structure of in-migrants, the majority of whom are relatively young and within the normal limits of work life. In Williston, more than 63 percent of all in-migrants were between the ages of 19 and 50. Of those resident in Williston in 1950 and residing there in 1954, only 41 percent were in this age category. These differences in age between "natives" and migrants also hold in every "oil" location in the study area. One aspect of this situation affecting the local economy, other than in terms of the labor force, is that these young migrant families had a large number of children in the younger school ages. The great increase in the school age population required new schools in Tioga and Ray, as well as Williston. The school at Ray was completed about the time that migrant population, primarily families of drilling crews, began to move on to other locations.

The impact of oil development on primary and secondary employment has been relatively great. The effect was not as great as the business leadership of the area assumed. One indication of the difference between the illusion of growth commonly held and the reality of the situation is in local population estimates. In 1954, the Williston Chamber of Commerce estimated the population of Williston to be 12,000, compared with the estimate of 9,717 derived from the sample.

Of these two estimates, the study figure must be credited with the highest validity on the basis of the employment estimates explicit in it. Two estimates of employment are available for Williston for July 1954. One is the sample estimate. The other is the estimate of the State Employment Service based on their sample of business establishments. Allowing for differences in the structure of these two samples, they compare very favorably. (SEE TABLE XLVIII.)

Table XLVIII

EMPLOYMENT BY INDUSTRY AND OCCUPATION, 1950 AND JULY 1954, WILLISTON, NORTH DAKOTA

	Williston			% Change	% Change
	1950 (census)	1954 (sample)	1954 (NDES)	1950-54 (sample)	1950-54 (NDES)
Agriculture	150	180		+ 20	
Mining & Construction	235	494	477	+110	+103
Manufacturing	120	181	190	+ 50	+ 58
Transportation, Construction and Public Utilities	535	461	387	— 14	— 28
Trade	880	1054	1199	+ 20	+ 36
Finance, Insurance & Real Estate	72	98	87	+ 36	+ 21
Source	679	727	774	+ 7	+ 14
Public Administration	126	221	248	+ 75	+ 97
No Data	76				
All Occupations	2863	3416	3362[1]	+ 19	+ 24
[1] Excludes Agriculture.					
Professional	256	330		+ 17	
Farmer	113	153		+ 35	
Manager, Proprietor, Official	338	586		+ 73	
Clerical	351	411		+ 17	
Sales	343	384		+ 12	
Craft, Foreman, Kindred	448	489		+ 9	
Operatives	333	359		+ 8	
Service	363	366		+ 1	
Farm Laborer	27	27		0	
Other Laborer	200	311		+ 56	
NEC.	71				

SOURCE: U. S. Department of Commerce. 1950 Census of Population.

The survey sample shows a total non-agricultural employment of 3,236, a gain of 19 percent over 1950. The ES figure is 3,362, a gain of 24 percent over the census estimate of 1950. The similarity of the two figures suggests that unless there has been a significant decline in labor force participation rates, the local estimate of population change must be excessive.

Nothing in the characteristics of the local population suggest that the proportion of the population in the labor-force has changed in significant degree. While the number of children and young persons under age 20 has increased since 1950, the proportion of the population over 65 years of age has declined. The off-setting effects of these changes and the migration of relatively large numbers of unmarried males into the area limit the possibility of a major decline in labor force participation rates.

It will be noted in Table XLVIII that although the two estimates of employment by industry do not agree in magniture, they do agree in the direction of change in every industry sector. In each case, the greatest gain was in mining and construction, followed by public administration and manufactures. In both samples, the service industry demonstrated the least positive gain and both agree that transportation, communication and public utilities had a decline in employment. In absolute terms much of the new employment was in mining, construction and trade. The study sample shows an increase of 433, and the ES sample 561 in these industry groups, compared to total gains of 523 and 649 respectively.

The small differences in the two samples can be explained in the fact that the study sample measures the employment of persons living in Williston without regard to their place of employment. Thus it tends to overstate employment in mining and construction in Williston since many persons dwell there who perform their employment in the oil fields. On the other hand, it is probable that a relatively large percentage of persons living outside of Williston, but employed there, are employed in trade and service and that employment in these industries is under-stated in the sample. Since the two samples measure employment in different terms, it is expected that the ES estimate should exceed the sample estimate. It should be noted that the survey sample is structured in the same manner as the decennial census and is the only one of the two measures that is comparable to it. Conversely, the ES sample is structured like the Census of Business.

Occupational changes in Williston suggest the pattern of business change. A detailed business census indicated that the intensive change in employment was slight and that most new employment was in firms new to the area. Further, most of these new establishments were small. Other than the largest oil producing companies, and major drilling companies, only one oil-related firm employed a large number of persons. In all other industry components, the small firm pattern was characteristic. As a result, the greatest change in occupation was that of managers, proprietors, and officials: a gain of 73 percent over 1950.

Detailed employment data for Ray, Tioga, Stanley and the rural

Table XLIX

LABOR FORCE AND EMPLOYMENT, PERSONS 14 YEARS AND OLDER, SELECTED AREAS, 1954

	WILLISTON			RAY			IMPACT COUNTIES			STANLEY			TIOGA AND TIOGA ENVIRONS		
	Male	Female	Total	M	F	T	M	F	T	M	F	T	M	F	T
Employed	2548	868	3416	424	59	483	612	20	632	462	123	585	824	86	906
Unemployed	57	25	82	3	6	9	4	......	4	6	5	11	17	8	29
TOTAL LABOR FORCE	2605	893	3498	427	65	492	616	20	636	468	128	596	841	94	935
Keeping House	8	2025	2033	......	326	326	0	423	423	......	338	338	4	534	538
In School	147	216	363	21	28	49	33	56	89	28	50	78	41	61	102
Unable to Work	155	98	253	21	7	28	20	4	24	43	35	78	27	12	39
Retired	145	....	145	29	......	29	4	8	12	15	......	15	31	......	31
Other	21	17	38	4	......	4	20	......	20	3	......	3	3	......	3
No Data	44	28	72	1	3	4	4	4	8	13	5	18	31	3	34
TOTAL NOT IN LABOR FORCE	520	2384	2904	76	364	440	81	495	576	102	428	530	137	610	747
TOTAL IN AGE GROUP	3125	3277	6402	503	429	932	697	515	1212	570	556	1126	978	704	1682

SOURCE: Projections from sample census.

Table XLIX-A

PERCENT DISTRIBUTION

	WILLISTON			RAY			IMPACT COUNTIES			STANLEY			TIOGA & TIOGA ENVIRONS		
	Male	Female	Total	M	F	T	M	F	T	M	F	T	M	F	T
Employed	97.8	97.3	97.7	99.3	90.8	98.2	99.4	100.0	99.4	98.8	95.7	98.2	98.0	90.9	97.0
Unemployed	2.2	2.7	2.3	0.7	9.2	1.8	0.6	....	0.6	1.2	4.3	1.8	2.0	9.1	3.0
Total Labor Force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Keeping House	1.6	84.9	70.7	....	89.6	74.0	....	85.5	73.4	....	78.9	63.7	2.2	87.6	72.0
In School	28.2	9.1	12.5	27.6	7.6	11.1	40.8	11.3	15.4	30.9	11.6	14.8	31.1	10.0	13.8
Unable to Work	29.8	4.0	8.7	27.6	1.9	6.3	24.7	0.8	4.2	42.4	8.2	14.8	20.0	2.0	5.3
Retired	28.2	....	5.0	38.2	....	6.6	4.9	1.6	2.1	12.1	....	2.8	22.2	....	4.1
Other	4.0	0.4	1.3	5.3	....	1.0	24.7	....	3.5	3.0	....	0.6	2.2	....	0.4
No Data	8.1	1.2	2.5	1.3	0.9	1.0	4.9	0.8	1.4	12.1	1.3	3.3	22.2	0.4	4.5
Total Not In Labor Force	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

impact areas are contained in Tables XLIX, L, and LI. The impact of

Table L

EMPLOYMENT BY INDUSTRY, SELECTED AREAS, 1954

	Ray	Impact Counties Williams and Mountrail	Stanley	Tioga and Tioga Environs
Agriculture	58	524	30	72
Mining and Construction	237	60	186	498
Manufacturing—Durable	......	......	......	......
Manufacturing—Non-Durable	......	......	5	......
Transportation, Communications and Public Utilities	46	16	57	66
Trade	83	20	147	130
Finance, Insurance & Real Estate	5	......	16	9
Service	31	4	88	72
Public Administration	5	......	36	17
No Data	18	8	20	42
TOTAL	483	632	585	906

SOURCE: Projections from sample census.

Table L-A

PERCENTAGE DISTRIBUTION

	Ray	Impact Counties Williams and Mountrail	Stanley	Tioga and Tioga Environs
Agriculture	12.1	82.9	5.1	8.0
Mining and Construction	49.0	9.5	31.8	55.0
Manufacturing—Durable	....	....	....	....
Manufacturing—Non-Durable	....	....	0.9	....
Transportation, Communication and Public Utilities	9.6	2.5	9.8	7.3
Trade	17.2	3.2	25.2	14.4
Finance, Insurance & Real Estate	1.3	....	2.8	1.0
Service	6.4	0.6	15.0	8.0
Public Administration	1.3	....	6.1	1.9
No Data	3.1	1.3	3.3	4.5
TOTAL	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

Table LI

EMPLOYMENT BY TYPE OF OCCUPATION, SELECTED AREAS, 1954

	Ray	Impact Counties	Stanley	Tioga and Tioga Environs
Professional	6	12	46	17
Farm	37	479	28	55
Managers	31	4	74	81
Clerical	25	8	44	87
Sales	31	4	71	24
Crafts	49	12	52	130
Operatives	197	52	97	315
Services	25	8	52	46
Farm Laborers	22	40	3	17
Other Laborers	34	4	96	101
No Data	26	9	22	33
TOTAL	483	632	585	906

SOURCE: Projections from sample census.

drilling activity and related construction on Tioga and Ray is obvious. Nearly half of all employment in Ray and more than half of that in Tioga and its environs was in mining and construction. Stanley also suggests this employment effect with nearly a third in these industries. The importance of the location of a large drilling company in Ray is reflected by the large proportion of the labor force classified as operatives, nearly 41 percent. Similarly, nearly 35 percent of all employees in Tioga were in this category with another 14 percent in the category of craftsman and foreman. The latter category reflects the construction of Signal Oil and Gas Company's oil refinery. The project was the major employment in the area.

Table LI-A
PERCENTAGE DISTRIBUTION

	Ray	Impact Counties	Stanley	Tioga and Tioga Environs
Professional	1.3	1.9	7.9	1.9
Farm	7.6	75.8	4.7	6.1
Managers	6.4	0.6	12.6	8.9
Clerical	5.1	1.3	7.5	9.6
Sales	6.4	0.6	12.1	2.6
Crafts	10.2	1.9	8.9	14.4
Operatives	40.8	8.3	16.8	34.8
Services	5.1	1.3	8.9	5.1
Farm Laborers	4.5	6.4	0.5	1.9
Other Laborers	7.0	0.6	16.4	11.2
No Data	5.7	1.3	3.7	3.8
TOTAL	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

The employment distribution of residents compared with migrants is shown in Table LII below.

Table LII
PERCENT BY INDUSTRY OF ALL PERSONS EMPLOYED IN 1954 WHO LIVED IN THE SAME AREA IN 1950, WILLISTON AND OTHER IMPACT AREA

	1950 Residence	
1954 Employment:	Williston	Other Impact Area
Agriculture	90%	95%
Mining and Construction	51	23
Manufacturing	69	100
Transportation, Communication and Public Utilities	79	59
Trade	70	65
Finance, Insurance & Real Estate	74	63
Service	81	69
Public Administration	67	80
All Industries	71%	58%

SOURCE: Projected from sample census.

While 7 out of 10 persons employed in Williston in 1954 lived in that community in 1950, only 4 of every 10 employed in other study

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areas were 1950 residents of the area. In both areas, the greatest penetration of migrants was into the mining and construction industry. Less than a quarter of those employed in this industry outside of Williston were native to the area of employment. In Williston, the numbers of natives and migrants in the industry were nearly equal. In the smaller communities and in the rural impact areas, there was no other industry group in which migrants were employed in greater proportion than they bear to the total labor force. Natives of the area while being interviewed often complained of the fact that the oil industry favored migrants in employment. In the long term, it may be that this factor is favorable to the community. When oil activity moves out of this area, those who will first suffer employment loss are those who came to the area in search of employment. The sustaining effects of oil derived income supplements may be adequate to maintain employment in the secondary industries in which the majority of "residents" are employed.

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[1] The analysis of bank deposit changes was made by W. E. Koenker, Professor of Economics, The University of North Dakota.

[1] During the last portion of this period; however, most of the oil companies operating in the area were beginning to maintain accounts at this bank as well as at the banks in Williams County. These accounts were drawn upon to make lease rental and royalty payments in the area.

SOCIAL CHANGE IN THE BASIN[1]

Robert B. Campbell

Along with the demographic, the economic, the political and the geographic changes, specifically social change was expected—and social change there has been in the Williston Basin area since the discovery of oil. General social change occurs in three broad kinds of situations: (1) where a homogeneous society is suddenly confronted by people who differ from its members in background, and thus in attitudes and values; (2) where innovations, especially technological ones, are introduced into a static social organization system necessitating changes in that system to "absorb" the innovation; or (3) where a stable population has a sudden change in numbers. Theoretically any such situations would be marked by a conflict in values and would become "social problems," that is, conditions which are considered undesirable in terms of the previously existing values of the society. Typically those changes which result in the greatest conflict in the society are those which are brought in from outside the system, perhaps because the society is not likely to have set up techniques for handling such changes. There is likely to be no consensus as to how the situation should be dealt with; consequently the society will be characterzied, however temporarily, by a conflict in attitudes. Social change proper occurs in the resolution of attitude differences and in the elimination or control of the "undesirable" conditions.[2]

The sociological research part of this project was posited on the assumptions of this theory of social change, and it was designed to discover what value conflicts and what "problems" occurred as a result of the large immigration of people from other parts of the country. It was hypothesized that: (1) local organizations which were purely social would not attempt to attract migrants into membership while those which were primarily economic or religious would make the attempt; (2) migrants, as a category, would be the objects of negative attitudes of the local citizenry; and (3) various kinds of social problems, such as increased crime, immorality, and low-grade housing, would arise. These hypotheses were based upon the theoretical assumptions that the local social organizations already in existence would be defensive as to their unity and would tend to repel outsiders, that the migrants would be defined as "outsiders" representing different values from those of the natives, and that the presence of a large number of new people would cause the existing societal organization to fail to operate in a way that was satisfactory to its new, as well as many of its old, members. With respect to this last, it was assumed that some of the old residents would define change itself as a problem and would resist any efforts at reorganization of the community while others would seek change but would not agree as to how the change should be brought about. The former would tend to have negative attitudes toward the migrants, the latter would tend to align themselves with the migrants.

A. *Local Organizations and Group Membership.*

Local organizations in Williston were affected only slightly by the influx of new residents. (It must be remembered that Williston—the only urban place in the research area and, thus, the only one having a relatively complete institutional organization—had only a 32% population increase as compared to 105% in Ray and 253% in Tioga, the two small trade centers.) Few of these organizations deliberately recruited new members in the migrant category, although apparently only one or two avoided, however indirectly, such membership. One group (social, educational and service) having twenty members responded to questions about the number of "oil-related" participants and the kind of effort made to get such participation as follows: "This is a small study group with a limited membership, thus your questions do not apply." Another group (social, fraternal and service) which had two of its 45 members "oil-related" and which was making no effort to get "oil-related" participation, reported that "membership is by invitation or transfer only. Invitations are primarily to local women." This latter group also answered the question as to what problems had been created for the organization by the oil development as follows: "A minor problem seemed to develop as prospective transferees moved here; however, very few are here long enough to become members of our chapter."

The most typical attitude expressed by organization officers was that the migrants who wanted to join were welcome but that the organization did not make a special effort to get them to join. For example, only two churches reported that they made a special effort to attract migrant participation and could estimate the number of such participants; and one of these expressed its limitation in the fact that "'oil people' are mainly from areas where the ———— Church is not strong." Most of the organizations polled (SEE TABLE LIII) had an increase in membership as a result of the population increase.

While the primarily social organizations showed almost no inclination to recruit members from among the migrants, neither did the religious and fraternal organizations. This generalization is indicated more markedly by the existence of two particular groups in Williston. The first of these was a new church ("H" IN TABLE LIII), the Southern Baptist Church, which was organized in 1953 apparently to minister to the unfulfilled spiritual needs of the large southern contingent of oil workers, who provided three-fourths of its membership. This group, with its 65 members, had already outgrown its building in its one full year of existence. The other group was a purely social one, the Ladies Petroleum Club, which was composed exclusively of women involved directly or indirectly with oil development and which had reached its physical limit in membership in 1954. The group was organized in

Table LIII

MEMBERSHIPS IN POLLED CHURCHES AND NATIONAL FRATERNAL ORGANIZATIONS IN WILLISTON, 1950-1954, AND 1954 "OIL RELATED" MEMBERSHIPS

Churches	Year					Oil Related Memberships
	1950	1951	1952	1953	1954	(1954)
A	175	185	215	215	250	20
B	220	....	....	....	325	40
C	80	85	86	99	95	....
D	50	50	60	65	65	....
E	15	15	24	26	32	....
F	25	30	48	57	68	....
G	93	93	101	110	123	15
H	....	....	....	11	65	48
Fraternal Orginizations						
Elks	745	831	876	973	997	175
Moose	1421	1626	1479	1445	1578	95

Some of the data above, particularly those in the "oil related" memberships column, represent the best estimate the ministers or presidents could make.

the middle of 1952 and in one year's time increased its membership from 55 to 125 (the limit). That the group felt the lack of local group invitation is indicated in this voluntary comment on the questionnaire:

> Probably worth mentioning is the fact that this club was organized for the purpose of enabling oil wives to get acquainted and as a means of furnishing them with some type of social life probably not offered any other place. Frequently it is difficult for new people to step into many of the older activities of a community.

The main business group in Williston was reported by residents in informal conversations to have made a complete and deliberate change from having no migrant members to providing special positions for them. At the time of the project field work there were representatives of the petroleum industry in the business group, and there were reports that the business group had brought them into membership for the specific purpose of eliminating some of the conflict which was developing. (An interesting sidelight on the social level of this relationship is the observation of the researchers that there were two distinct informal groups which met almost daily for lunch in a popular Williston cafe. The "old" business group met for lunch, as it had for years, at a table reserved for it in one part of the cafe; the "new" group, predominantly oil men, met at another table at the same time. The humor in the situation was apparent at least to the latter in that they had adopted a name for themselves which was a "take-off" on the name of the former, like, for example, "long-snorters" and "short-snorters.")

In general, then, the hypothesis that local social organizations would not recruit migrants while religious and economic organizations would do so was only partially supported. The social groups had not attempted to bring in the new oil people, but neither had the religious organizations to any substantial degree. The business group had brought in oil people, but it did so relatively lately and, in a sense, under the duress of a potential conflict situation. These conclusions, drawn from the analysis of the organizations, are supported by responses obtained from heads of households in Ray and Williston concerning their organization memberships (TABLE LIV). Not only did "old" residents belong to organizations significantly more than did "new" residents, but the association between length of residence and organization membership was greater in Ray than in Williston.

Table LIV

MEMBERSHIPS IN ORGANIZATIONS FOR OLD AND NEW RESIDENTS, BY LOCALITY (RAY AND WILLISTON), 1954

Locality	Old Residents		New Residents		Total	
Number of Memberships	Number	Percent	Number	Percent	Number	Percent
Ray (Total)	60	100	64	100	124	100
One or more	37	62	18	28	55	44
None	14	23	39	61	53	43
No data	9	15	7	11	16	13
Chi-square is 17.9 for 2X2 table, omitting "no data"; C = .37*						
Williston (Total)	349	100	164	100	513	100
One or more	229	66	79	48	308	60
None	116	33	79	48	195	38
No data	4	1	6	4	10	2
Chi-square is 12.1 for 2X2 table, omitting "no data"; C = .15*						

*C, coefficient of mean square contingency, is a measure of association whose maximum value is .707 for a 2X2 table, thus these may be considered "moderate" amounts of association.

No attempt was made to poll the organizations in the smaller communities on the assumption that they would be few and small. There were indications, on the basis of the residence sample interviews, that on a general social level organizational conflict was closer to the surface there than in Williston, reaching even to the level of political action (SEE PAGE 00). The ex-mayor of one of the communities cited the existence of an oil organization which had effected a considerable opposition to him in the previous election because of his refusal to make concessions to oil interests. In both localities (Ray and Tioga) at least semiformal organizations came into existence to press for change or for maintenance of the status quo. Both places were caught with a virtual lack of services for the expanded populations. The desire, particularly of newcomers, for what they considered basic and necessary services resulted in what was described by participants as a battle between the "progressives" and the "conservatives." In one of the places these organizations were the "wets" and the "drys" in the issue as to whether a water system should be installed. Paving and sewer system were other issues around which informal groups arose. In one sense

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these issues actually cemented relations between newcomers and some of the long-term residents much faster than might otherwise have occurred because the migrants, demanding the services, were joined by many of the regular residents. Some of the latter mentioned with obvious pride and respect that their community now had an active business group which was leading toward a general progress. (One such group was the "J-C-ettes," composed of oil workers' wives and the wives of local businessmen, which not only had a political and economic influence but which had a strong social effect in terms of developing favorable attitudes toward the oil people and toward change.)

Conflicts on the personal level in Ray and Tioga were more apparent than in Williston not only in the aforementioned political issues but also in general attitudes about people of one sort or another. One woman, whose son was a leader in the fight for the water system, reported that her neighbor had not spoken to her for a year as the consequence of the fight. Others referred to the "backwardness" of the native residents, to the "riff-raff" who came in to work the oil fields, and to the destruction of the close friendly relations between town and country since the business had begun to cater to oil workers, such statements reflecting an outspoken but numerically small group of people. (In interpreting the detailed material on personal and social attitudes, the reader should bear in mind a possible overall explanation of differences in the degree of value-conflict between Williston and the other two centers—Williston tended to draw the "white-collar" oil workers, Tioga the more nearly permanent oil field workers—the better paid, supervisory field personnel—and Ray, the transient and temporary employees.)

These differences are supported indirectly by the facts (SEE TABLE LV) that Williston's population was 66% "native" (i.e., present before April 1950) as contrasted with Tioga's 33% and Ray's 39%. Of the Williston population only 4% resided in trailers, while Tioga and Ray had 21% and 38% respectively. (The 1955 observation that Ray had lost the most population was further evidence in this regard.)

B. *Intergroup Attitudes.*

The gross indications of conflict between "new" and "old" residents, while important in the situations in which they were found, were not sufficient to support the hypothesis that there would be generally-held negative attitudes of each grouping toward the other. One aspect of the study was an attempt to discover whether such attitudes were widespread and more nearly constant than the temporary conflicts centering around political issues. This attempt was somewhat superficial because of the impracticality of "depth interviewing" as far as the purposes of the general study was concerned, but it was suitable to give the broad type of answer sought.

The most important conclusion about the intergroup attitudes is that the new residents of Williston who had met many of the old ones

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Table LV

PRESENT RESIDENCE (1954), 1950 RESIDENCE, TYPE OF DWELLING: BY PERSONS, WITH "SAME RESIDENCE" PERCENT AND WITH PERCENT OF PERSONS IN TRAILERS

Present Residence & 1950 Residence	Total Number of Persons	Type of Dwelling				Percent of Persons in Trailers
		Single	Trailer	Multiple	Other	
Williston	2335	1687	98	548	2	4.2
Williston	1544	1246	12	284	2	0.8
Other N. D.	374	229	38	107	..	10.2
All other areas	417	212	48	157	..	11.5
Williston %	66.1	73.9	12.2	51.8		
Tioga	616	419	131	66	..	21.3
Tioga	202	151	8	43	..	4.0
Other N. D.	224	168	45	11	..	20.1
All other areas	190	100	78	12	..	41.1
Tioga %	32.8	36.0	6.1	65.2		
Ray	470	218	177	73	2	37.7
Ray	181	148	17	16	..	9.4
Other N. D.	62	18	16	26	2	25.8
All other areas	227	52	144	31	..	63.4
Ray %	38.5	67.9	9.6	21.9		
Stanley	560	365	109	81	5	19.5
Stanley	351	279	13	56	3	3.7
Other N. D.	131	74	40	15	2	30.5
All other areas	78	12	56	10	..	71.8
Stanley %	62.7	76.4	11.9	69.1		
Williams County	285	278	4	3	..	1.4
Williams County	236	236	....	....	..	0.0
Other N. D.	16	12	4	....	..	25.0
All other areas	33	30	....	3	..	0.0
Williams County %	82.8	84.9	0.0	0.0		
Mountrail County	116	116	....	....	..	....
Mountrail County	104	104	....	....	..	....
Other N. D.	12	12	....	....	..	....
All other areas	0	0	....	....	..	....
Mountrail County %	89.7	89.7	....	....	..	....

had a good opinion of them almost without exception, 99% of them having expressed this in answer to the direct question: *Have you met many of the new residents (since 1950) of Williston? If "yes," what do you think of them generally?* (SEE TABLE LVI.) (The researchers missed what might have been a good chance to test the secondhand nature of stereotypes and prejudices when the 58 heads of households, 38% of the total, who replied that they had not met many of the old residents were not asked their opinion of old residents.)

The distribution of opinions of both old and new residents of Williston as to whether or not newcomers had been accepted into the community is, perhaps, of even more interest. As Table LVII shows, a total of 96% of the old residents and 95% of the new residents thought that newcomers had been accepted, 92% and 89% respectively expressing no qualifications to their opinions. Only 3% of the old residents and 4% of the new believed that newcomers had not been generally accepted.

Table LVI

NEW RESIDENTS' OPINION OF OLD RESIDENTS, WILLISTON, 1954

	Have Met Old Residents					
Opinion	No	Yes *	Yes **	No Data	Total Number	Percent
Good		41	17		58	81
Good, qualified		8	5		13	18
Poor		1			1	1
Total of Opinions		50	22		72	100
No opinion		2	1			
No data		10	9		19	
Does not apply***	58			11	69	
TOTAL	58	62	32	11	163	
Percent***	38	41	21			

* (Unqualified)
** (Qualified)
***Omitting "no data" with respect to having met old residents—The "does not apply" arose from the interviewing procedure of not asking opinions of those who had not met many of the old residents.

Table LVII

OPINIONS OF OLD RESIDENTS AND NEW RESIDENTS AS TO WHETHER NEWCOMERS HAD BEEN ACCEPTED INTO THE COMMUNITY, WILLISTON, 1954

	Old Residents		New Residents		
Accepted?	Number	Percent	Number	Percent	Total
TOTAL	349		164		
Yes	294	92	124	89	418
Yes, qualified	13	4	9	6	22
No, qualified	1		0		1
No	8	3	6	4	14
Indefinite	4	1	1	1	5
Total of Opinions	320	100	140	100	460
No opinion	22		14		36
No data	7		10		17

These facts certainly do not indicate the hypothesized negative attitude towards the migrants as a category or any reaction back toward the "natives"; furthermore, they appear to be out of harmony with some of the description of the conflict and lack of association in organizations in the previous section. This disharmony is "more apparent than real." Firstly, these facts were obtained from Williston residents, and Williston had a minimum of conflict about migrants for reasons described earlier. Facts from Ray, Tioga, and particularly the rural areas pointed up a greater measure of negative attitudes. Secondly, none of the failures to recruit migrants into organizations carried with them any overt negative attitude, that is, the officers of organizations did not express any antipathy toward migrants in describing their membership and recruitment policies. The failure to recruit migrants might be as indicative of the organizations' failure to identify migrants as a separate category as of the negative attitude respecting the category. Finally, the research was conducted late enough in the development that tendencies to generalize negative attitudes may have been dissipated because of the increased and increasing opportunities for association on a personal level between members of the two categories. What may have been general negative attitudes as a consequence of isolated contacts could not be expected to persist when contacts became more frequent and more personal. The conflicts may have represented issue differences rather than residence differences—at least this conclusion is more consistent with the facts than is the hypothesis that there would be generalized, negative categorical attitudes.

C. *Social Problems.*

In order to avoid the prejudices or preconceptions of the researcher, a social problem is considered in this report as any situation which is reported by people involved in it as undesirable and, therefore, about which they express a negative opinion, possibly indicating a tendency to act to change the situation. From this point of view a situation may not be a problem to the participants despite the fact that the observer is disturbed by it. An example of a situation of this sort is one of the residences in Ray which, according to a consensual estimate of three of the researchers, was about 6 feet by 8 feet and 7 feet high. Not once did a resident of the town express a negative attitude about this particular "house," not to mention a small bus which had become someone's home. This simply was not considered a problem in Ray to the knowledge of the participants in the research project.

1. *Housing.* As one might easily suppose on the basis of the tremendous population changes reported earlier, housing was one of the major social (and personal) problems in the area. Even though the population peak had been passed, there was still a pressure for permanent-type housing in parts of the area. An interesting paradox is, however, that some rental housing in both Williston and Ray was "going begging" in 1955, thus creating what might be a noticeable economic problem. Realtors in all three localities were still building extensively in 1955 to meet their estimates of the market for homes, thus changing the situation which constituted a problem for many of the migrants.

According to local businessmen in Williston, the explanation of the paradox was that the demand for temporary housing had been met but that there was a backlog of demand by residents in temporary housing for permanent homes. Their theory was that many people had to take sub-standard housing during the boom, but in 1954 they were seeking better housing; thus there was an upward mobility toward the best housing, tending to eliminate the social problem of low-grade housing. The evidence presented in favor of the theory was that a num-

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ber of homes which were being built by a Williston contractor had already been spoken for and that he planned to start an even larger number as soon as he could do so.

On the other hand, a government official reported that employment and wages had not risen sufficiently to meet the costs of better housing. As new homes became available in Williston they were filled by those families who were already living in the more expensive rental units, thus there was a gap which was not being filled from below because of the inability of the "common laboring man" to pay the high rents.[3]

The observations of the researchers tended to support this latter view. That there was a general social problem in housing was evidenced by the often-mentioned concern about the "flats" (a low-grade housing area of Williston) and the shared idea among business people that more and better housing was in continuous demand. That the general mobility upward was not taking place was indicated by the stability of the "flats" population and the availability of a number of high rental apartments (observed in both 1954 and 1955).

In Ray the "wrong side" of the problem was even more obvious. Local business interests built a large number (34 units) of high rental apartments (duplex and four-plex) to relieve the pressure of trailer and basement dwelling, only to find that the demand for such residences was insufficient to make them pay. The bulk of the migrants were temporary residents who either could not afford the apartments or were satisfied to reside in their trailers. (Most of the trailer residents were employed by a drilling company which provided large, new trailers for low rent, the rent being applied toward the purchase of the trailers so that the renter would obtain ownership if he remained with the company for a certain length of time.)

However much the trailers represented a social problem for the home owners in Ray, the fact remained that they were not a problem for their inhabitants. They were, rather, the solution to the problem of high rents. The trailer camps provided ample facilities for those inhabitants, apparently.

A major housing problem arose in Tioga out of an interesting migration situation. Tioga had a considerably greater proportion of in-migration of North Dakotans than did either Williston or Ray (TABLE LVIII). Of the total population of Tioga 36% came from other parts of North Dakota while the corresponding figures for the other places were 16% for Williston and 13% for Ray. The Tioga migrants, particularly the North Dakotans among them, did not find available to them the opportunities for rental trailer residence that characterized Ray. Neither did the Tiogans have much opportunity for multiple-type dwelling units, which had only 5% of the North Dakota migrants living in them (as compared to 45% for North Dakota migrants who resided in Ray in 1954.) The result was that Tioga generally had recognizably

Table LVIII

TYPE OF DWELLING BY PRESENT RESIDENCE (1954) AND BY 1950 RESIDENCE, FOR THE THREE MAIN LOCALITIES OF THE AREA

Present Residence			Type of Dwelling					
1950 Residence	Total		Single		Trailer		Multiple	
		100%		72%		4%		24%
Williston	100%	2335	100%	1687	100%	98	100%	550
Williston	66	1544	74	1246	12	12	52	286
Other N. D.	16	374	14	229	39	38	19	107
All other states	18	417	12	212	49	48	29	157
		100%		68%		21%		11%
Tioga	100%	616	100%	419	100%	131	100%	66
Tioga	33	202	36	151	6	8	65	43
Other N. D.	36	224	40	138	34	45	17	11
All other states	31	190	24	100	60	78	18	12
		100%		46%		38%		16%
Ray	100%	470	100%	218	100%	177	100%	75
Ray	39	181	68	148	10	17	21	16
Other N. D.	13	62	8	18	9	16	38	28
All other states	48	227	24	52	81	144	41	31

poorer housing than the other two places, composed partly of older trailers and partly of make-shift single dwellings. The prime problem, on the basis of local comment as well as being the one the observations of the researchers indicated, was a single dwelling housing group (12 or 16 units). These were reported as being "grain bins" and "chicken sheds" which had been hauled in from a farm to be rented. One of the residents of Tioga commented on them approximately as follows:

> Did you see those grain bins down the street? People are living in those. I don't see how anyone could rent them. They can't be very substantial; they're not very heavy. I sat here one morning and watched two of them being carried on one truck.

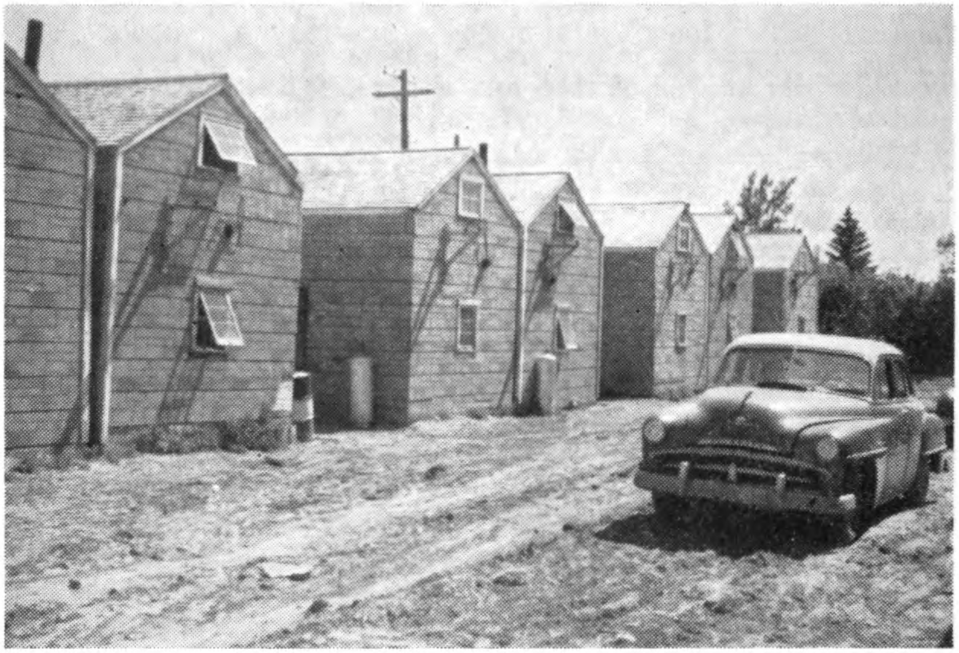
These were actually one-room sheds with a loft which served as supplementary sleeping space and was accessible by ladder. They were made of low grade lumber which was covered, top and sides, by tar-paper roofing material.

Generally speaking, then, the increase in population created a situation of tight, "substandard" housing which was interpreted variously as a social problem—high rental apartment vacancies in Williston and Ray and grain bins in Tioga. There were other housing situations which properly were personal rather than social problems as herein conceived. Examples of these were the following:

a. One person reported that Tioga was going to require that all residences, including trailers, be connected to the sewer lines. He didn't know what to do because he couldn't comply in his trailers' present location and he didn't know where he could go.

b. A man who had just arrived in Tioga with his family met the interviewer in the yard of a small hut. He opened the conversation

RESIDENCES — TIOGA, N. D., SUMMER, 1954



The rapid increase in population created tremendous pressure on local housing resources. These sheds were hauled in by truck from a nearby farm to be used as family residences.

(after the usual introduction by the interviewer as to why he was there) by asking, "Can you do anything about this? How can they expect a man to live in something like that? I've come all the way from (a southern state) because of my job and I've never had to live in anything like this before."

Additional Aspects of the Housing Situation . . . Despite the fact that only "problem" situations were hypothesized for the specialized research, this report would be incomplete without some description of the objective situation in housing. Referring back to Table LVIII, 72% of the Williston population, 68% of the Tioga population, and only 46% of the Ray population resided in single dwellings. In 1950, according to the U. S. Census of Housing, the figures for residences by type were 55% single dwellings for Williston and 92% single dwellings for Williams County rural nonfarm areas; these suggest that there was a great relative decrease in the supply of single dwellings in Ray and Tioga and an increase in the supply for Williston.

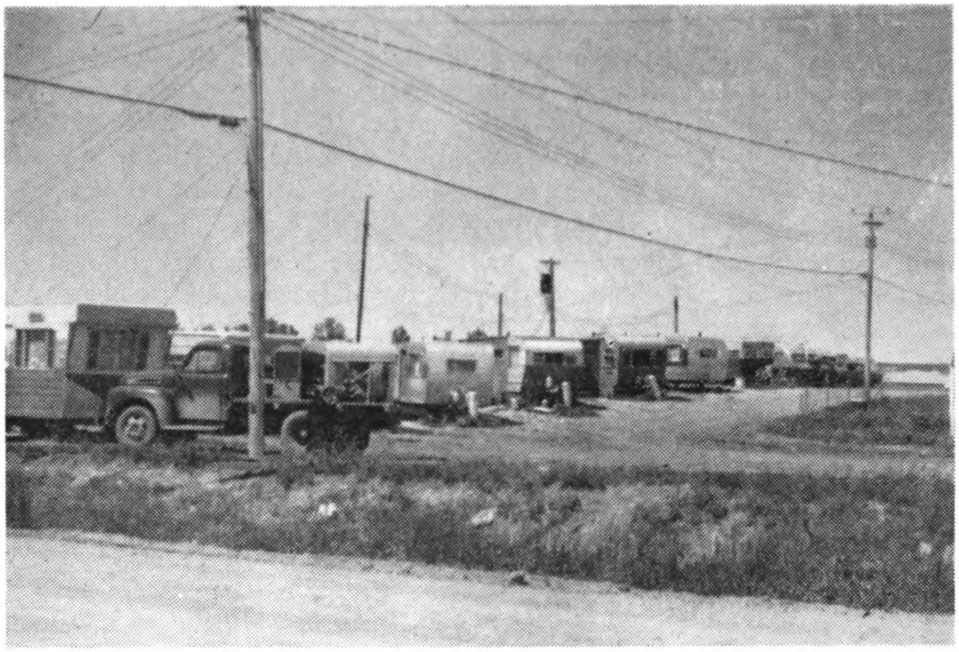
Trailers were ordinarily located in camps which were limited in the space they had available. As the picture indicates, the ground space allotted to each trailer household was small—an estimated 20' by 40' area being typical (inclusive of that part occupied by the trailer itself).

There was not nearly the crowding that these observations might suggest, since all three localities had space available in the immediately surrounding areas. The big trailer camps appeared at the north and south edges of Ray, the east and south edges of Tioga, the north edge of Williston, and in what has been called herein the "Tioga environs." This last was a completely new settlement area from U. S. Highway No. 2 into Tioga (a distance of about 4 miles). There were several trailer camps in this particular area and a complete village of low-rent, permanent type single dwellings (including garages) which were provided by one of the oil companies for its permanent, operating staff.

All three localities had whole areas of new rental and/or ownership single dwellings amounting, at least in Williston, to separate communities in the sociological sense. The northwestern edge of Williston had been expanded several block depths with new houses, new stores, and a new school to provide for the numerous children in the area. An exclusive, high-cost housing development occurred in the northeast corner of Williston, inhabited by both "old" and "new" residents in the city. Ray and Tioga have their new streets of new residences, too, the latter particularly having a "new community" on the south side of the railroad, inhabited primarily by migrants who are associated with the petroleum industry. As mentioned earlier (cf. Wills) one is impressed on first arriving in Ray or Tioga by the obvious combination of the new and the old in the residential as well as other building. Most buildings appear as being either pre-World War II or post-1952.

2. *Crime and Immorality*. As soon as one hears that a particular place is a "boom" area, he is likely to think of a general laxity of law

RESIDENCES — RAY, N. D., SUMMER, 1954



Regular employees of established drilling companies brought their housing with them. This is part of one of the large trailer camps which characterized the oil development area.

enforcement or, at least, of a greater incidence of loose spending for illegal and barely legal pleasures. Couple that conception with the idea that there has been a considerable increase in population composed largely of unmarried men in "rough" occupations and the ingredients are complete for a common-sense prediction that criminality and immorality will be greatly increased. Such a prediction would have been only partly correct, apparently, in the Williston Basin. Assuming that there are some exceptions to a generally useful theory, the problem is to explain why some thinks did not occur as well as why some did.

First, the assumption that a large proportion of the increased population was composed of unmarried men was contrary to the facts. The bulk of the oil field workers not only were married but had children. (In both Ray and Tioga only about one-fourth of the men were single.)

Second, there was a general provision of increased law enforcement facilities. As the data presented in Table LIX indicate, Williston had an increase in expenditure for the purpose of expanding the police protection as well as increases in revenues from fines levied against offenders. There had been an increase in police department employees

Table LIX

WILLISTON EXPENDITURES AND RECEIPTS, FISCAL YEARS* 1950-51 TO 1953-54, FOR SELECTED ITEMS

	EXPENDITURES				
Year	Police Magistrate's Courts	Police	Prisoner	Liquor Licenses	Total
1950	$ 2,142.00@	$18,113.82	$1,711.50		$ 97,545.58
1951	2,142.00@	15,045.76@			63,554.22
1951	3,173.00@	24,753.53	2,512.00		108,934.76
1952	3,173.00@	19,104.46@			72,729.56
1952	4,791.30@	42,770.70	4,086.11		164,859.05
1953	4,791.30@	34,119.84@			110,955.17
1953	3,471.40@	49,176.34	1,892.38		203,984.21
1954	3,471.40@	43,079.81@			144,661.47
	RECEIPTS				
1950					
1951	8,644.70			14,500.00	94,886.56
1951					
1952	14,499.00			17,500.00	131,426.10
1952					
1953	35,110.50			18,916.67	189,035.30
1953					
1954	27,006.00			19,250.00	178,281.02

@Salaries

*To get approximate semiannual data, figure 40% for first half, 60% for second half year.

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from 6 in 1949 to 13 in 1954.[4] Ray had employed a full-time policeman who was reported by the citizens as being "tough" on violators of any sort but particularly on speeders, speeding having been apparently the main problem. The situation there was that U. S. Highway No. 2 ran directly through the town and the highway carried a tremendously increased traffic flow between Williston and Tioga. (SEE PAGE 00)

Third, drunkenness was prevented from developing to the problem proportions it might have reached by a combination of already existing circumstances. Williston had already put into operation a police technique for controlling excessive drinking prior to the peak in oil development migration. The Williston officials had been considering the migrant farm labor population as a source of the prospective problem and had instituted a system of quick pick-ups in the "skidrow" section. (In Williston the taverns tended to be concentrated within a 3-block area, thus it was possible to station one or two policemen in the area during the peak periods of activity, particularly Saturday nights.) This system was supplemented by an informal one which was probably unknown to the local officials. One owner-operator of a quiet but fairly popular tavern reported that he had avoided trouble with the police because "once trouble starts in a tavern they will really check on you." His solution was not the curtailment of beer sales, but the personal care of the over-imbiber by sending him home in a taxi at his (the tavern owner's) expense. He had never been bothered by the police because no difficulty had resulted from drinking in his establishment. Another factor which probably helped prevent a drunkenness problem was the attitude of the local judiciary (at least prior to 1955 when a local "revolution" occurred with respect to arbitrary and selective enforcement of the law by Williston police). The police magistrate penalized to the maximum offenders of the drinking laws. (SEE TABLE LIX).

Fourth, a main source of drinking and gambling activity was available immediately outside the area, thus what might have been a problem within the area was removed. An active gambling, drinking, dining and dancing "club" just across the Montana state line attracted a large clientele from the oil development area although it has been restricted since the field survey following a raid in which the gambling devices were confiscated. Any compelling urges to participate in relatively large-scale gambling could be satisfied through this well known channel.

Finally, exidence is lacking that there was a greater inclination among migrants than among "natives" to participate in illegal and "fringe" types of activity, although some of the people interviewed referred to one particular kind of illegality which was attributed exclusively to oil field workers. There were a few instances when, apparently, migratory workers wrote "bad checks" or moved out from under debts. The rural residents in the area were particularly disturbed by this because it resulted in a complete redefinition of the relationship between themselves and the businessmen in small centers. Where formerly they had been able to cash checks at any business place without even considering having to identify themselves, now they could not cash checks at these places at all.

There were no indications available to the researchers that there had been a notable increase in, or even the presence of, organized criminal or immoral activity—gambling houses, theft rings, "protection" or houses of prostitution. There were two known prostitutes in Williston, but in no sense were their activities organized, continuous or flagrant.

These explanations account for the absence of readily observable behaviors in contradiction to the mores and laws, but official statistics show that the "problem behaviors" which were expected did occur.

Table LX

WILLISTON POLICE MAGISTRATE'S CASES, SEMIANNUAL, JULY 1952 TO JUNE 1954

	DRIVING		LIQUOR				
Half-Year	Reckless Driving	Speeding and Stop Sign	Drunk Driving	Open Bottle in Car	Drunk and Disorderly	Miscellaneous	Total
1952—2nd	49	490	41	50	668	219	1517
1953—1st	80	418	67	28	529	118	1240
1953—2nd	95	287	72	44	529	194	1221
1954—1st	56	101	43	39	329	173	741
GRAND FORKS (a city three times as large—for comparison)							
1954—1st	60	120	32	12	286*		

*This does not include 14 cases of disorderly conduct.

COMPARISON OF WILLISTON CASE RATE WITH THAT FOR THE NATION FOR CITIES OF COMPARABLE SIZE, ON TWO COMPARABLE TYPE OFFENSES, 1953

Offense	Williston rate, cases/100,000 pop. (computed at Williston 9,500 pop.)	U. S. rate cases/100,000 pop., for cities of 2,500-10,000 pop.**	Williston cases
Drunk driving	1454.5@	346.0	139
Drunkenness	11109.0	1714.0	1058

@This category may not be directly comparable, inasmuch as "drinking and driving" or "driving while having been drinking" might more nearly characterize the Williston situation.

**IBID.

As Table LX indicates, Williston had a large number of cases in which offenders were held for prosecution (and a comparison of the total number of cases in this table with the receipts of the police magistrates court in Table 7 indicates the financial punishment of the offenders). The sample figures for Grand Forks, North Dakota, a city more than twice the size of Williston, and for two comparable offenses nationally for cities of the same size make possible a gross interpretation of the greater frequency of offenses (and/or prosecution) than one would expect of a city like Williston.

The reader might well ask at this point if the researchers had their eyes shut in order to cite these statistics in the same paragraph in which the "absence of readily observable behaviors" was mentioned. In the monthly figures, furthermore, June 1954 (one of the months in which the field research was conducted) exceeds all the months in the biennium except March for the number of offenses, 178 as compared to 202 for these months. The explanation, it appears, is the quick apprehension of offenders (particularly liquor) which was mentioned earlier.

Returning to the conception of social problems with which this analysis was approached, the only situations which were represented as social problems by residents of Williston in the area of immorality and illegality were the drinking-fighting incidents involving, for the most part, immigrant farm labor and the drinking-driving activities of the Williston young people, neither of which could be attributed (except very indirectly through economic change) to the oil development.

3. *Welfare Activities.* There are a number of institutionally-recogniled "social problems" which were little, if at all, affected by the development of oil in the Williston Basin. Old age cases, aid to dependent children cases and the like were simply not changed materially by the situation. There was, however, an increase in the incidence of payments to transients who were temporarily unable to leave the area. The Williams County office of welfare services reported as their biggest new problem the number of transient persons who moved in after hearing about the "big oil boom," who should not have moved and who had become stranded. The Mountrail County office had had an increase in cases involving negligence of children and tracing of people, but payments to cases had not been affected materially by the oil development.

4. *The Public Service Situation.* Some of the social service or community service agencies encountered problematic situations which were, at least, indirect social problems, that is, situations about which the public through its agencies desired a change toward a more acceptable alternative.

a. *Schools.* In all three communities there arose the necessity of expanding school facilities to relieve crowding in both space and time. In Williston, for example, 22 elementary class rooms had been constructed and 26 persons had been added to the staff to accommodate the 36% increase in enrollment between 1950 and 1954 (SEE TABLE LXI). The superintendent has calculated, as nearly as was possible, that about 24% of the total enrollment was "oil-related." In Ray and Tioga emergency measures, such as the split day, had to be taken because of the tremendous expansion in enrollment. All three communities have expanded the physical plants considerably.

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Table LXI

WILLISTON PUBLIC SCHOOL ENROLLMENT AND EMPLOYMENT, OCTOBER, 1950-1954

	1950	1951	1952	1953	1954
Enrollment	1508	1639	1524	1815	2041
Employment	60½	62½	63	73½	86

b. *Library* An interesting change occurred in the Williston Library service, although the librarian was so pleased that she was more inclined to call it a solution rather than a problem. There was a disproportionate participation in library services by migrants (including children) and a "revival of local interest" following a general revision of the library in 1951. The circulation of library materials had increased 373% from 1950 to 1954 (SEE TABLE LXII). There had been, furthermore, increased monetary contributions by the local citizens and the donation of technical books by a large oil company.

Table LXII

WILLISTON LIBRARY CIRCULATION, FISCAL YEARS 1950-1954

1950	1951	1952	1953	1954
7,967	13,925	24,303	32,826	37,679

c. *Post Office.* One of the most serious problems encountered by a specialized public service agency was the situation in the Williston post office. The building was much too small to admit easy handling of the increased volume of business, particularly since much of that increase involved commercial and transient (general delivery) mail. On one Monday alone a special test conducted by the postmaster indicated that one single company had over 1000 pieces of mail. The situation was equally difficult because of the relatively continuous necessity of reorganizing the carrier service and expanding it into new areas. Table LXIII shows the extent of the increase in service that followed the oil discovery.

Table LXIII

WILLISTON POST OFFICE; ANNUAL RECEIPTS AND FIRST CLASS MAIL PIECES HANDLED, 1950-1954

	1950	1951	1952	1953	1954*
Annual Receipts ($)	109,184	114,154	140,192	150,074	....
Pieces of 1st-class	1,594,120	1,720,300	2,121,096	2,281,323	1,078,005*

*January 1—June 30 only.

d. *State Employment Service.* The State Employment Service encountered an increased demand for its services in both directions, for workers and for jobs. It had problems in both directions, finding enough workers in 1952, finding enough jobs in 1954. There was a continuous increase in the use of its facilities despite these labor supply and demand fluctuations because of the increase of total employment.

e. *Newspapers.* The increase in population was accompanied by a corresponding increase in the circulation of newspapers in Williston,

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local circulation people maintaining that the newcomers did not differ from the older residents in their interest in the coverage of local papers.

Table LXIV

WILLISTON NEWSPAPER CIRCULATION, AVERAGE, 1950-1954

	1949	1950	1951	1952		1953		1954	
				(1st half)	(2nd half)	(1st half)	(2nd half)	(1st half)	(2nd half)
Williston Herald	4200[1]	....	5981	5739	6438	6775	7021	7112	....
Williston Plains Reporter	....	....	....	....	....	....	....	....3220[2]....	
Minneapolis Star and Tribune[3]	....	200	300	450		550		600	

[1] Circulation manager's estimate for January

[2] Publisher's estimate

[3] Circulation manager's estimates

Summary of Investigated Social Changes in the Williston Basin and Conclusions

Social changes—changes in numbers and kinds of people, in attitudes, in organizations, in personal and agency actions—were general as a consequence of the oil discovery and its development. Certain hypothesized changes, however, did not occur in Williston to any marked extent. Economic and religious organizations made no special attempts to attract migrants into their memberships, although there were no evidences that migrants were unwelcome. Migrants were not disapproved of categorically except by a small number of people in the rural areas. There were value conflicts, particularly in Ray and Tioga, but enough of the "natives" joined forces with the migrants that the opponents tended to be labeled "progressives" and "conservatives" rather than "old" and "new" residents. The opinion was general among both natives and migrants that the latter had been accepted into the community.

Some of the hypothesized changes or failure to change were borne out at least partly. Social groups did not recruit migrant members. At least two groups were organized by Williston migrants—a Southern Baptist Church and a social club for the wives of oil workers. There were social problems but they were far short of the anticipated magnitude. Housing of the "right" type was short, and there were a few indications of general dissatisfaction about it. There were high rates of minor offenses against the law, but there were no indications of organized crime. There were no serious complaints about the migrants being responsible for the increased offenses. Special problems were created for various public service agencies: schools were crowded and additions had to be built; the library, the post office and the state employment service all encountered considerable increases in the demand for their services; the local governments had to provide new and expanded services.

Most of the evidence presented is of the discriptive survey type in keeping with the general purpose of the study. It is, at best, suggestive with respect to any general theory of social change. On the other hand, the description itself could have general usefulness for the officials and interested citizens in any community which is confronted with a rapid change in helping them anticipate the kinds of actions which they might have to take. There is no question that the people of the Williston Basin knew little or nothing as to what to expect, consequently many of their actions and reactions contributed little to the solution of their problems or of the general situation. In our *opinion* (the data were not and are not available to express these as facts or as systematic predictions): realtors over-extended themselves into the construction of residences for which there was no continuous, or future, demand; many North Dakotans migrated to the Basin in anticipation of unlimited opportunities only to find no more opportunities than in the areas they left; school officials committed too much permanent building expansion;[5] a general spirit of over-optimism, reflected in expansions, investments, and population estimates, left the citizens unprepared to handle the out-migration and the decrease in economic activity which had already begun in 1954. (One of the unfortunate aspects of a report of this sort is that some of the predictions which are practically useful are not available early enough. We could have predicted fairly accurately the amount of immediate decrease in Tioga's population as we were conducting the field work because of our knowledge that particular individuals already knew the dates on which they were to be transferred. Furthermore, we could have predicted the decrease in activity because of the knowledge we obtained about the relative number of employees neded in exploratory as compared to development activity in the oil fields. The predictions of this sort that we expressed orally tended to be ridiculed as obviously wrong or as attempts to devaluate the importance of the oil development to the state of North Dakota. This reaction, itself, would be an interesting study.)

The total report is, in effect, a case study and as such tends to give the appearance that it is a description of a unique situation. The practical usefulness of such a report depends in large measure on the applicability of the results to other situations of the same sort. The following quotation indicates the similarity of the consequences of oil development to those of industrial development in the small community; if North Dakota is successful in its attempts to attract industry the picture will be repeated.[6]

> The information in this study illustrates the nature of social changes which are almost certain to occur in a community as a consequence of industrial development in or near its borders. The need for increased and improved trade facilities develops, and the demand for various public-supported services grows. Sewage disposal, street improvements, additional water supply, expanded hospital facilities and more school buildings were problems which were present in Mohawk, as they are likely to be in any community which has a rapid increase in population.

The ways in which communities deal with these problems are varied. Systematic and scientific planning to take care of needs as they arise would be the ideal course to follow, but many communities are not successful in achieving this goal. In most instances, the need becomes very great—sometimes critical—before a community will act. Mohawk, for instance, did not make definite plans to build a sewage disposal plant until the village was threatened with a court action. Such situations emphasize again the need of city and county planning as a basis for community action in response to social change.

In Mohawk, as in most communities, different points of view emerged in regard to the various action programs proposed to meet community needs. These views varied along a continuum from opposition to change to support for it. Such attitudes are characterized in different ways—conservative or progressive—old or new—reactionary or progressive. The name is not particularly important. The significant point is that in community action such divergent points of view are almost certain to rise.

Many of the old roots in Mohawk, that is the residents who had been in the community for a long time, tended to take the cautious, conservative position in regard to community action. Those who became residents as a consequence of industrial development favored a more aggressive program of community action. As in other similar situations, these points of view had to be harmonized, at least to the extent that some kind of social actions to meet community needs could be accomplished.

FOOTNOTES

[1] Conclusions drawn in this section are based exclusively upon the field work done in the summer of 1954. All supplementary information of later date is identified as to date.

[2] From the sociological point of view situations are never inherently problematic; they become problems only when they are defined as undesirable by the people involved in them.

[3] The extent of the rent pressure is indicated, perhaps, in the fact that Representative Burdick was quoted in the newspapers in February 1956 as reporting the government's approval of Williston as a low-rent government housing area.

[4] *Uniform Crime Reports for the United States,* Semiannual Bulletin, Vol. XXV, No. 1, 1954 and Vol. XX, No. 1, 1949.

[5] It is our prediction that the population of Ray and Tioga will decrease markedly from the 1954 figures, thus tending to leave a surplus of class room space. This will be no total loss by any means, since the communities will at least have modern buildings which they would not have had otherwise.

[6] C. R. Hoffer and W. Freeman, *Social Action Resulting from Industrial Development,* Michigan State University Agricultural Experiment Station. Special Bulletin 401, September 1955. pp. 29-30.

APPENDIX A — METHODOLOGY NOTE

The information on which this report is based was compiled from the results of a census of Williams and Mountrail Counties, from interviews with numerous officials, businessmen and local leaders, and from a variety of publications and governmental records.

The census of population characteristics and of local opinions was conducted during the summer of 1954 in the areas affected by the oil development. Because of practical considerations, the affected area was divided into the following parts, within which interviews were conducted on a sample basis: Williston, Ray, Tioga, "Tioga Environs" (a new residential area outside the town itself), Stanley, and the rural impact townships (the 22 townships which encompassed or adjoined the field development). Interviews with adult members of the households—a total of 1,313 interviews—were conducted by the research staff using standard schedules designed to obtain information about the demographic, social, economic and political characteristics of the inhabitants.

Samples were drawn on a random and stratified basis in the following proportions: Williston—25% of the platted areas; Ray—33% of the residences; Tioga—50% of the residences; Tioga Environs—50% of the residences; Stanley—33% of the platted areas; rural impact townships—25% of the farm areas. Although the remaining areas of the two counties were excluded on the assumption that they were not directly affected by oil development activity, they were surveyed informally by mailed questionnaires in the farm areas (total of above 200) and by personal inspection in the nonfarm population centers to check (and demonstrate) the validity of the assumption.

All the available supplementary information (such as the U. S. Census of Agriculture, records in local offices of state and federal agencies, various indices of population growth) indicates that the samples were highly representative of the survey areas and that the projections of population numbers and characteristics are accurate within a very few percent. In every area which was sampled a double-check was made to determine that every household which belonged in the sample was represented and that the number of households represented was accurate on the basis of a total residence count.

Additional information on employment, gross sales or receipts, gross weekly payroll, value of inventories, gross change in investment, and proprietors' estimates of the impact of oil upon their businesses were obtained from 187 businesses in Williston and from 29 businesses in Tioga, the two centers most directly affected by the oil development. Bank data relating to the general level of economic activity and to financial transactions immediately related to oil development were collected in Williston, Ray, Tioga and Stanley. Institutional data concerning the membership, policies, plans, and influence on and by the oil development were obtained from the agents of 30 organizations and institutions representative of the social structure of Williston.

No less important than the data obtained in formal interviews involving the use of schedules were the impressions gained and the observations made by the research staff as "participant observers," as residents in the area for three months. The staff was rewarded by an apparently mutually satisfying relationship with local citizens which made possible an almost perfect response to the population and opinion census (only 7 refusals in the total 1,313) and a general willingness to discuss local problems and developments in almost every office and store which staff members entered. The informal, "unstructured" discussions over coffee, across counters and on the sidewalks were what gave real content and meaning to the local "boom" and "bust" psychology, to the excitement and to the anxiety attached to individual oil wells and housing developments and business expansions.

APPENDIX B—SUPPLEMENTARY TABLES

1. WILLISTON: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	785	713	1498
5- 9	548	598	1146
10-13	341	330	671
14	40	77	117
15-19	262	354	616
20-29	805	665	1470
30-39	736	718	1454
40-49	533	440	973
50-64	451	493	944
65 and over	346	297	643
TOTAL ALL AGES	4936	4781	9717
No Data	89	96	185

SOURCE: Projections from sample census.

2. WILLIAMS COUNTY: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	76	52	128
5- 9	92	80	172
10-13	60	28	88
14	4	4	8
15-19	60	48	108
20-29	88	52	140
30-39	96	76	172
40-49	68	64	132
50-64	112	64	176
65 and over	60	40	100
TOTAL ALL AGES	724	512	1236
No Data	8	4	12

SOURCE: Projections from sample census.

3. MOUNTRAIL COUNTY: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	28	48	76
5- 9	32	20	52
10-13	12	24	36
14	8	4	12
15-19	0	16	16
20-29	36	56	92
30-39	36	16	52
40-49	48	20	68
50-64	52	24	76
65 and over	24	24	48
TOTAL ALL AGES	276	252	528

SOURCE: Projections from sample census.

4. TIOGA ENVIRONS: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	124	129	253
5- 9	23	41	64
10-13	5	14	19
14	9	0	9
15-19	14	19	33
20-29	133	125	258
30-39	88	51	139
40-49	27	18	45
50-64	28	10	38
65 and over	0	0	0
TOTAL ALL AGES	506	425	931
No Data	55	18	73

SOURCE: Projections from sample census.

5. TIOGA: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	92	133	225
5- 9	108	89	197
10-13	56	43	99
14	14	14	28
15-19	60	61	121
20-29	130	111	241
30-39	142	116	258
40-49	134	80	214
50-64	50	31	81
65 and over	39	31	70
TOTAL ALL AGES	897	711	1608
No Data	72	2	74

SOURCE: Projections from sample census.

6. RAY: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	166	138	304
5- 9	98	62	160
10-13	49	34	83
14	7	15	22
15-19	55	28	83
20-29	151	174	325
30-39	132	86	218
40-49	49	47	96
50-64	46	30	76
65 and over	50	46	96
TOTAL ALL AGES	816	663	1479
No Data	13	3	16

SOURCE: Projections from sample census.

7. STANLEY: TOTAL POPULATION—AGE AND SEX

	Male	Female	Male & Female
0- 4	125	118	243
5- 9	89	84	173
10-13	39	64	103
14	22	16	38
15-19	55	61	116
20-29	142	145	287
30-39	117	81	198
40-49	67	67	134
50-64	82	65	147
65 and over	45	70	115
TOTAL ALL AGES	822	823	1645
No Data	39	52	91

SOURCE: Projections from sample census.

8. MARITAL STATUS FOR THOSE 14 YEARS OF AGE AND OVER, 1954

	Williams	Ray	Tioga	Tioga Environs	Stanley	Williams County	Mountrail County
MALE:							
Married	2401	367	359	229	402	272	112
Single	672	108	185	76	144	200	80
Divorced or separated	13	3	11	....	....	....	....
Widowed	140	9	19	....	23	16	12
No Data	36	16	67	49	....	8	....
TOTAL	3262	503	641	354	569	496	204
FEMALE:							
Married	2236	343	352	232	361	264	108
Single	575	49	60	9	100	60	32
Divorced or separated	44	9	....	....	3	....	4
Widowed	267	25	31	....	53	24	16
No Data	18	3	3	....	40	4	....
TOTAL	3140	429	446	241	557	352	160
MALE & FEMALE:							
Married	4637	710	711	461	763	536	220
Single	1247	157	245	85	244	260	112
Divorced or separated	57	12	11	....	3	....	4
Widowed	407	34	50	....	76	40	28
No Data	54	19	70	49	40	12	....
TOTAL	6402	932	1087	595	1126	848	364

SOURCE: Projections from sample census.

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9. RELATION TO HEAD OF FAMILY, 1954

	Williston	Ray	Tioga	Tioga Environs	Stanley	Impact Areas: Williams and Mountrail
Head	2672	394	404	267	466	460
Wife	2186	354	349	222	380	353
Son	2118	387	339	175	357	504
Daughter	2021	274	325	194	345	328
Lodger—Hired Worker	205	52	142	60	61	12
Relatives	204	18	35	5	31	95
No Data	311	....	14	8	5	12
TOTAL	9717	1479	1608	931	1645	1764

SOURCE: Projections from sample census.

10. INHABITANTS BY 1950 AND 1954 RESIDENCE

	1954 Residence						
1950 Residence	Williston	Ray	Tioga	Tioga Environs	Stanley	Williams County	Mountrail County
MALE:							
Same	2769	239	283	....	412	544	212
Within Area	203	31	79	39	70	31	8
Other North Dakota	473	55	205	93	112	4	20
Contiguous States	232	15	68	25	24	19	4
All Other	474	310	170	225	79	50	4
Total	4151	650	805	382	697	648	248
FEMALE:							
Same	2717	227	196	....	444	353	159
Within Area	240	30	75	23	89	43	26
Other North Dakota	529	51	135	106	89	6	15
Contiguous States	207	9	47	14	21	19	4
All Other	375	208	125	153	62	39	....
Total	4068	525	578	296	705	460	204
MALE & FEMALE:							
Same	5486	466	479	....	856	897	371
Within Area	443	61	154	62	159	74	34
Other North Dakota	1002	106	340	199	201	10	35
Contiguous States	439	24	115	39	45	38	8
All Other	849	518	295	378	141	89	4
Total	8219	1175	1383	678	1402	1108	452

SOURCE: Projections from sample census.

11. LABOR FORCE STATUS—14 YEARS OF AGE AND OVER

	WILLISTON			RAY			IMPACT COUNTIES			STANLEY			TIOGA AND TIOGA ENVIRONS		
	Male	Female	Total	M	F	T	M	F	T	M	F	T	M	F	T
Employed	2548	868	3416	424	59	483	612	20	632	462	123	585	824	86	906
Unemployed	57	25	82	3	6	9	4	....	4	6	5	11	17	8	29
TOTAL LABOR FORCE	2605	893	3498	427	65	492	616	20	636	468	128	596	841	94	935
Keeping House	8	2025	2033	....	326	326	0	423	423	....	338	338	4	534	538
In School	147	216	363	21	28	49	33	56	89	28	50	78	41	61	102
Unable to Work	155	98	253	21	7	28	20	4	24	43	35	78	27	12	39
Retired	145	....	145	29	....	29	4	8	12	15	....	15	31	....	31
Other	21	17	38	4	....	4	20	....	20	3	....	3	3	....	3
No Data	44	28	72	1	3	4	4	4	8	13	5	18	31	3	34
TOTAL NOT IN LABOR FORCE	520	2384	2904	76	364	440	81	495	576	102	428	530	137	610	747
TOTAL IN AGE GROUP	3125	3277	6402	503	429	932	697	515	1212	570	556	1126	978	704	1682

SOURCE: Projections from sample census.

12. PERCENT DISTRIBUTION OF LABOR FORCE—14 YEARS OF AGE AND OVER

	WILLISTON			RAY			IMPACT COUNTIES			STANLEY			TIOGA AND TIOGA ENVIRONS		
	Male	Female	Total	M	F	T	M	F	T	M	F	T	M	F	T
Employed	97.8	97.3	97.7	99.3	90.8	98.2	99.4	100.0	99.4	98.8	95.7	98.2	98.0	90.9	97.0
Unemployed	2.2	2.7	2.3	0.7	9.2	1.8	0.6	....	0.6	1.2	4.3	1.8	2.0	9.1	3.0
TOTAL LABOR FORCE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Keeping House	1.6	84.9	70.7	....	89.6	74.0	....	85.5	73.4	....	78.9	63.7	2.2	87.6	72.0
In School	28.2	9.1	12.5	27.6	7.6	11.1	40.8	11.3	15.4	30.9	11.6	14.8	31.1	10.0	13.8
Unable to Work	29.8	4.0	8.7	27.6	1.9	6.3	24.7	0.8	4.2	42.4	8.2	14.8	20.0	2.0	5.3
Retired	28.2	....	5.0	38.2	....	6.6	4.9	1.6	2.1	12.1	....	2.8	22.2	....	4.1
Other	4.0	0.4	1.3	5.3	....	1.0	24.7	....	3.5	3.0	....	0.6	2.2	....	0.4
No Data	8.1	1.2	2.5	1.3	0.9	1.0	4.9	0.8	1.4	12.1	1.3	3.3	22.2	0.4	4.5
TOTAL NOT IN LABOR FORCE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

13. INDUSTRY GROUP FOR EMPLOYED PERSONS, 1954

	Williston	Ray	Impact Counties Williams and Mountrail	Stanley	Tioga and Tioga Environs
Agriculture	239	58	524	30	72
Mining and Construction	611	237	60	186	498
Manufacturing—Durable	21	......	......	......	......
Manufacturing—Non-Durable	89	......	......	5	......
Transportation, Communications and Public Utilities	513	46	16	57	66
Trade	929	83	20	147	130
Finance, Insurance and Real Estate	130	5	......	16	9
Service	581	31	4	88	72
Public Administration	165	5	......	36	17
No Data	138	18	8	20	42
TOTAL	3416	483	632	585	906

SOURCE: Projections from sample census.

14. PERCENT DISTRIBUTION OF INDUSTRY GROUP FOR EMPLOYED PERSONS, 1954

	Williston	Ray	Impact Counties Williams and Mountrail	Stanley	Tioga and Tioga Environs
Agriculture	7.0	12.1	82.9	5.1	8.0
Mining and Construction	17.9	49.0	9.5	31.8	55.0
Manufacturing—Durable	0.6	....	....	....	....
Manufacturing—Non-Durable	2.6	....	....	0.9	....
Transportation, Communications and Public Utilities	15.0	9.6	2.5	9.8	7.3
Trade	27.2	17.2	3.2	25.2	14.4
Finance, Insurance and Real Estate	3.8	1.3	....	2.8	1.0
Service	17.0	6.4	0.6	15.0	8.0
Public Administration	4.8	1.3	....	6.1	1.9
No Data	4.0	3.1	1.3	3.3	4.5
TOTAL	100.0	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

15. OCCUPATION GROUP FOR EMPLOYED PERSONS, 1954

	Williston	Ray	Impact Counties	Stanley	Tioga and Tioga Environs
Professional	260	6	12	46	17
Farm	205	37	479	28	55
Managers	533	31	4	74	81
Clerical	383	25	8	44	87
Sales	335	31	4	71	24
Crafts	447	49	12	52	130
Operatives	348	197	52	97	315
Services	328	25	8	52	46
Farm Laborers	27	22	40	3	17
Other Laborers	294	34	4	96	101
No Data	256	26	9	22	33
TOTAL	3416	483	632	585	906

SOURCE: Projections from sample census.

16. PERCENT DISTRIBUTION OF OCCUPATION GROUPS FOR EMPLOYED PERSONS, 1954

	Williston	Ray	Impact Counties	Stanley	Tioga and Tioga Environs
Professional	7.6	1.3	1.9	7.9	1.9
Farm	6.0	7.6	75.8	4.7	6.1
Manager	15.6	6.4	0.6	12.6	8.9
Clerical	11.2	5.1	1.3	7.5	9.6
Sales	9.8	6.4	0.6	12.1	2.6
Crafts	13.1	10.2	1.9	8.9	14.4
Operatives	10.2	40.8	8.3	16.8	34.8
Services	9.6	5.1	1.3	8.9	5.1
Farm Laborers	0.8	4.5	6.4	0.5	1.9
Other Laborers	8.6	7.0	0.6	16.4	11.2
No Data	7.6	5.7	1.3	3.7	3.8
TOTAL	100.0	100.0	100.0	100.0	100.0

SOURCE: Projections from sample census.

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Campbell, R.B.
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